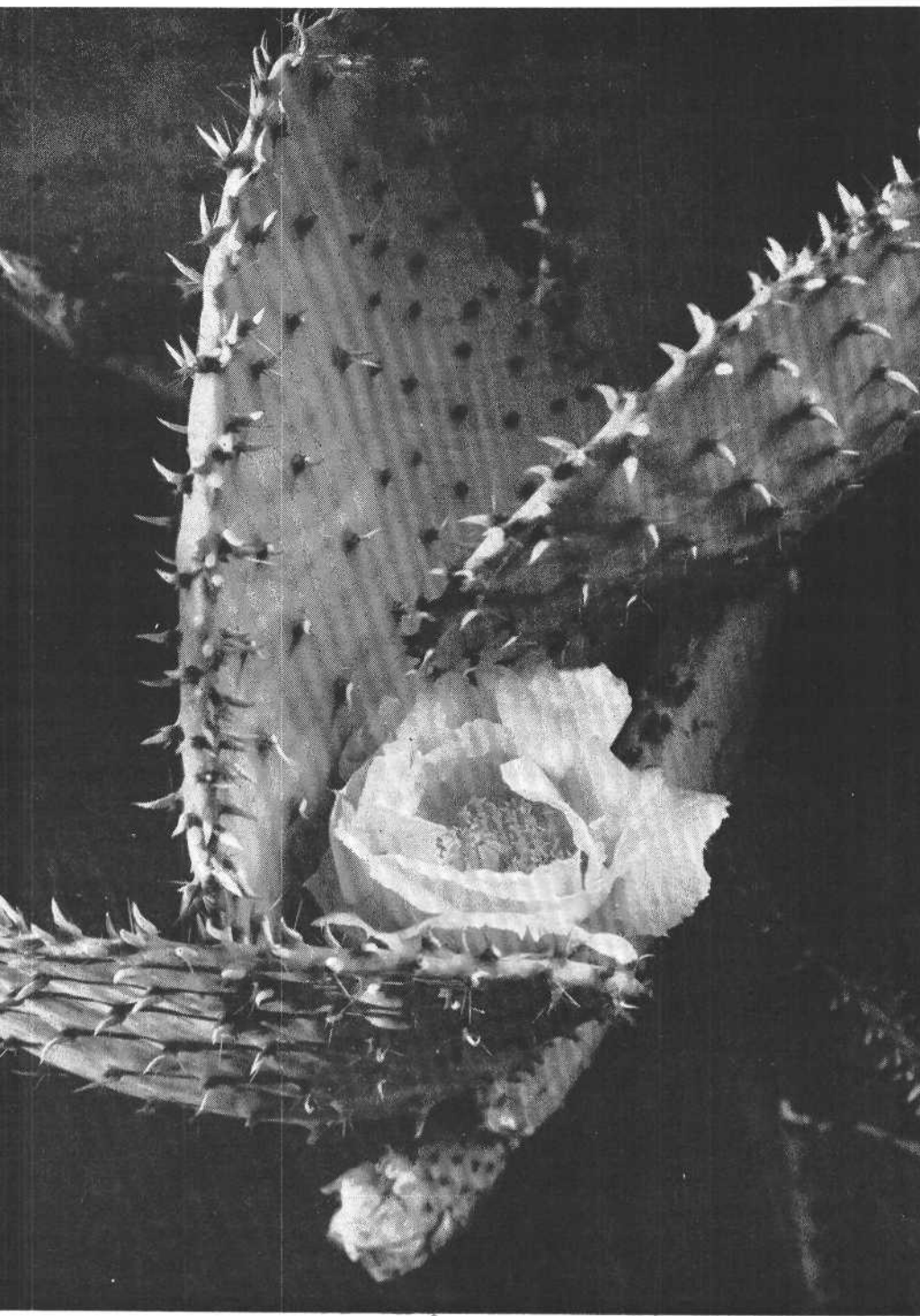


# Desert

JULY, 1957 . . . . . 35 Cents







### SPRING IS A PROSPECTOR

By MAUDE RUBIN  
Santa Ana, California

Spring is a prospector, crabbed and bent—  
That loud-braying wind is his burro.  
With a mountain and star for his bed-roll  
and tent  
He searches each rippled sand furrow;  
Finds a color or two in a long-dry stream  
bed,  
(Needs a grubstake, but where can Spring  
borrow?)  
So he plods on through shifting mirages,  
hope-led  
Feeling certain he'll strike it tomorrow.

That April tomorrow is fickle and cold  
And his burro is too tired to hike—  
But when palo-verde trees scatter their gold  
Old Prospector Spring makes a strike!

### Justice

By TANYA SOUTH

Give all you have, and ask for no  
reward.  
You will be paid, and amply, by the  
Lord.  
So just are Life's decrees, so straight  
a course  
Is run from cause unto effect, that  
force  
Is never needed in repayment just.  
We earn each crust!  
And what we earn we get without  
reserve.  
As we deserve.

## Cactus Rose

By GEORGE A. STOUGH  
Trinidad, Colorado

Alone on a rocky hillside  
I found my lovely rose;  
Safe guarded in her thorny bed  
Against her many foes.

And she held her head quite proudly  
Beneath the deep, blue sky,  
While there our friendship awakened  
Between my rose and I.

Her great beauty it was gleaming  
In petals of deep pink;  
As there I stood enraptured with,  
Love at first sight, I think.

Now I will endure the hardship  
Of miles both hot and dry,  
Just again to glimpse my rose girl,  
Beneath the deep, blue sky.

• • •

### TO THE DESERT WIND

By EVANS THORNTON  
New York, New York

Go friend of space, of rock and sand,  
Of shadowed purple hills, wind-clean,  
You hide within your splended land  
A longing longed for, here unseen;  
Hid here from us who beat "the street,"  
And dig our gold in canyons of steel and  
stone,

Hid here where only steam has heat  
And hearts are cold with fear and so alone.  
Return, oh wind, to your long sweep of  
space,

Stay here no more your songs don't sell;  
We dare not stop for fear we'll lose the  
race,

And we are deaf to the tales you'd tell.  
Within this frenzied world of men our  
hearts can't hear your cry,  
So butcher, baker, singer, and king, deaf  
are we to die.

• • •

### BARE BROWN HILLS OF NEVADA

By MRS. GLADYS THOMAS  
Fallon, Nevada

Those bare brown hills of Nevada,  
Bold, and brazen, and free,  
They scorn the green cloak of shrub and  
tree,  
Worn by mountains of modesty,  
And shadows glide caressingly,  
Over their bare brown beauty.

Those gold-lined hills of Nevada,  
Warm, and gay and serene,  
But old man winter being sorta shy,  
Wraps each in white as he passes by,  
And Jack Frost adds diamonds on the sly,  
Over their bare brown beauty.

• • •

### TIME TO LIVE

By HAROLD PATCH  
Perkinsville, Vermont

Give me time to think, and ponder,  
As my life's course rolls along;  
Time to drink in Nature's beauty,  
Time to hum a snatch of song.

For the deeper joys of living  
Don't depend on speed, you know;  
Joy's fruition is the sweeter  
Given time to fully grow.

## DESERT CALENDAR

- June 24-July 5—Southwest Writers' Workshop, Arizona State College, Flagstaff.
- July 1—Rodeo, Ely, Nevada.
- July 2-4—Rodeo, Silver City, N. M.
- July 3—Days of '47 Cavalcade, Salt Lake City.
- July 3-4—Rabbit Ear Roundup Rodeo, Fort Sumner, New Mexico.
- July 3-5—Gadsden Purchase Fiesta, Mesilla, New Mexico.
- July 4—Independence Day Celebrations: Mesa, Bisbee and Ajo, Arizona; Newhall, California; Ely, McDermitt, Eureka, Goldfield, Caliente, Lovelock and Austin, Nevada; Las Vegas, White Sands National Monument and Cimarron, N. M.
- July 4-6—LDS Rodeo, Show Low, Arizona.
- July 4-6—29th Annual Southwest All-Indian Pow Wow, Flagstaff.
- July 4-7—Frontier Days and Rodeo, Prescott, Arizona.
- July 4-7—Rodeo, Reno.
- July 4-7—24th Annual Hopi Craftsman Exhibit, Museum of Northern Arizona, Flagstaff.
- July 4-7—Cowhands Rodeo, Cloudcroft, New Mexico.
- July 4-7—Mescalero Apache Indian Ceremonial, Mescalero, N. M.
- July 4-7—Rodeo and Jack Pot Roping, Payson, Arizona.
- July 6-7—9th Annual Hesperia Day Celebration, Hesperia, California.
- July 11-13—Ute Stampede, Nephi, Utah.
- July 11-14—Rodeo, Santa Fe.
- July 11-14—Cowboy Camp Meeting, Clayton, New Mexico.
- July 12-14—All Faces West Pageant, Ogden, Utah.
- July 14—Corn Dance, Cochiti Pueblo, New Mexico.
- July 18-20—Dinosaur Rodeo, Vernal, Utah.
- July 18-20, 22-24—Rodeo, Salt Lake City. Pioneer Day Parade on 24th.
- July 18-21—2nd Annual Trade Show and Carnival, Palmdale, California.
- July 21—Shrine Circus, Elko, Nevada.
- July 21-28—Navajo Craftsman Exhibit, Museum of Northern Arizona, Flagstaff.
- July 22-27—White Mountain Range Riders trek to Mount Baldy, from Springerville, Arizona.
- July 23-24—Fiesta Days, Spanish Fork, Utah.
- July 24—Pioneer Days Celebration and Rodeo, Ogden, Utah.
- July 24—Pioneer Days Rodeo, Lund, Arizona.
- July 24—Pioneer Days, Panaca, Nev.
- July 25-26—Spanish-Colonial Fiestas of St. James and St. Ann, Taos; Corn Dance at Taos Pueblo, N. M.
- July 26—Fiesta and Corn Dance, Santa Ana Pueblo, New Mexico.
- July 27-28—Sheriff's Posse Round Up, Flagstaff.
- July 27-28—Los Alamos County Fair, Los Alamos, New Mexico.
- July 28—Ricks Trophy Air Races, Tucson.



Volume 20

JULY, 1957

Number 7

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Fourth of July Picnic. CHUCK and ESTHER HENDERSON ABBOTT took this picture of their children and themselves celebrating Independence Day on the desert.

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Charcoal Kilns

By JOSEF and JOYCE MUENCH . . back cover

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RANDALL HENDERSON, Editor  
BESS STACY, Business Manager

EUGENE L. CONROTTO, Associate Editor  
EVONNE RIDDELL, Circulation Manager

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Address Correspondence to Desert Magazine, Palm Desert, California

# Collecting Gizzard Stones in Utah ...

Not all scientists agree that the smoothly polished gizzard stones actually were used by dinosaurs as crop roughage—but everyone agrees that they make very unusual cabinet pieces. This month's field trip takes you to the Yellow Cat uranium mining district where these stones abound, along with gem quality pertified wood and fossilized bone specimens.

By GENE SPERRY  
Map by Norton Allen  
Photographs by Lee W. Sperry

**I** BECAME AN ardent rockhound after one prospecting trip to Utah's Yellow Cat uranium mining district between Cisco and Thompson. And no wonder—the material is plentiful and colorful, and the craggy and rough-hewn battlements that we wandered through are fascinating.

Ted Wolverton, who leases mines in the Yellow Cat district, told my husband, Lee, and I about the area's gizzard stones. This is a rock of contention in the rockhound fraternity. Some geologists, miners and rockhounds believe the gizzard stones were actually swallowed by dinosaurs to aid in the maceration of their food—others oppose this theory.

These gastroliths have a high polish

and slickness not found in other rocks, no matter how long they have been exposed to weather and water. They are easily seen for they are entirely foreign to the native stones. Even the holes on the surface of the gizzard stones have a velvety polish.

In many of the gizzard stones collected that day I found fossils which were ancient when the dinosaurs roamed this land. They record our first forms of life, from the Cambrian, Ordovician, Silurian and Devonian eras.

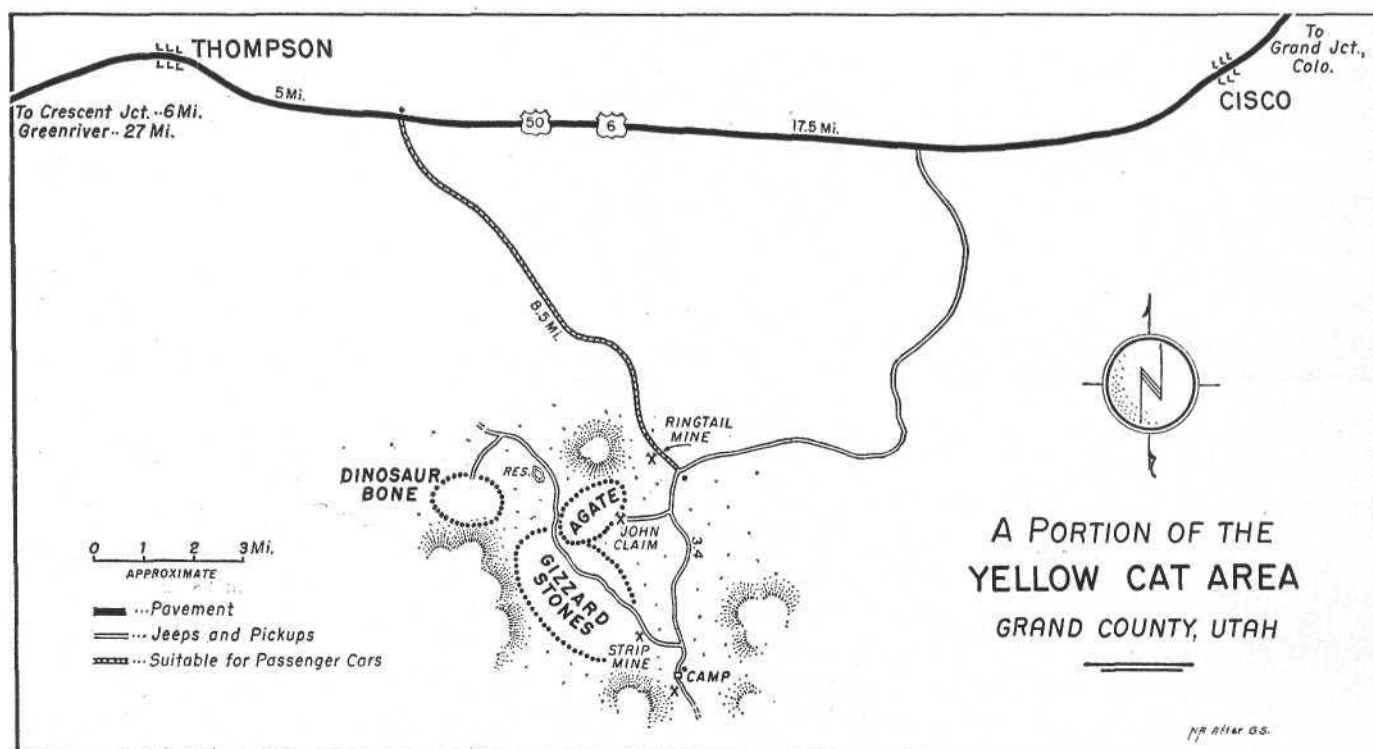
Most were worm or micro-fossils, a few were imprint fossils. In some the cell structure was plainly visible to the naked eye while others required a magnifying glass. I found the shell

fossils especially beautiful for most had crystallized into various shades of red and pink. One specimen Wolverton found contained a perfect star-shaped fossil of a starfish that may have lived 400,000,000 years ago. It is milk white in color as are most of the gizzard stone micro-fossils.

The Yellow Cat district also contains other fossilized rocks. Most had shell, coral and cell structure imprints. Occasionally I found small clusters of round coral on the surface of the rock rather than imbedded or imprinted. I also found fossils of segmented worms, archaeocyathus, corals, nummulite shells, snails, spirifers, tracks of crustacea and worms, sponges, bryozoa and crinoidea. My one disappointment is that I have yet to find an imprint of a trilobite (*Desert*, Sept. '55).

Petrified wood and dinosaur bone were two other treasures we found here. Tracking the original source of bone or wood splinters became an exciting game. It was generally a matter of following the float up a wash or incline. Often I was disappointed because the source had completely disappeared. Other times I discovered where the log had shattered to pieces or where several dinosaur bones were buried in the sandy soil.

Bone and tree rocks have a texture unlike any other. In bones the cell structure is completely there. Often they are a soft red, brilliant blue, dull brown, glittering black or a combination of these colors. Trees are complete with knots, rings and bark. They too occur in many shades of brassy





green, dull black, crystal white, pale tan or a combination of colors.

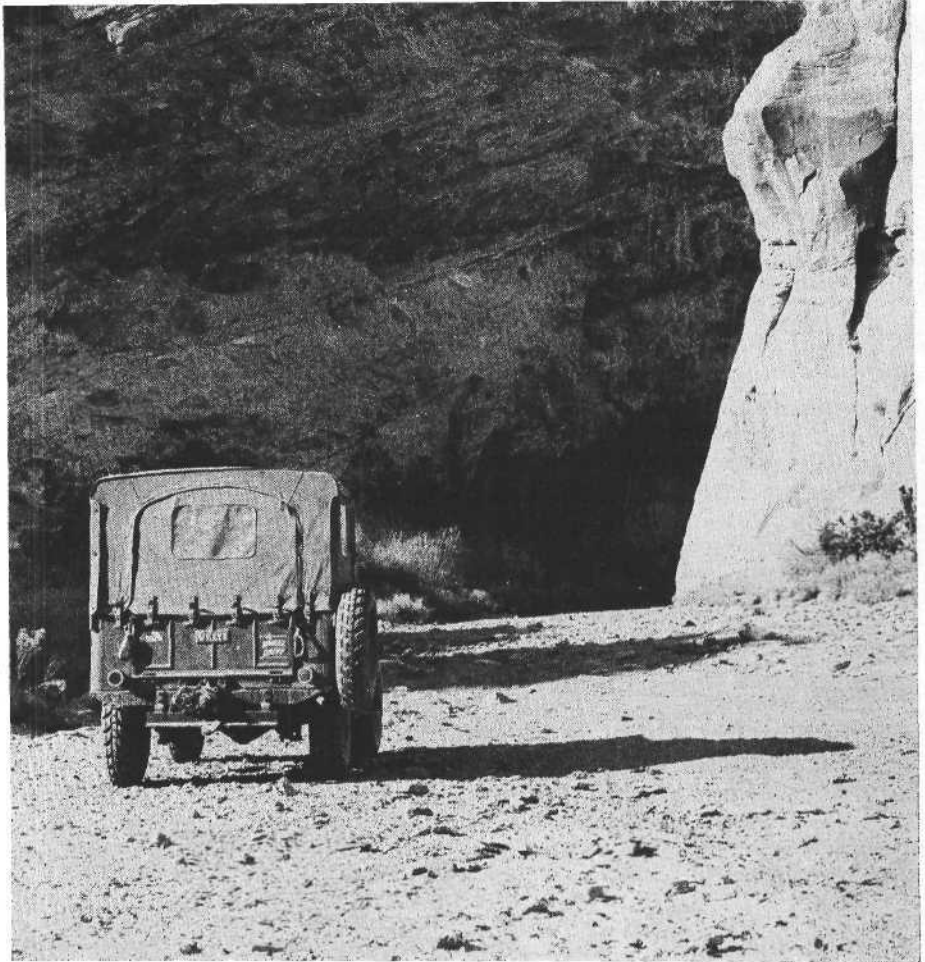
In many cases the specimens have agatized or opalized, and these are real prizes for the rockhound. Most petrified bone and wood is dull colored, brittle and easily shattered, while the agatized and opalized bone and wood is very hard and will usually take a high polish.

The Yellow Cat area's many roads give the rockhound an opportunity to cover the entire country. The main gravel roads can be traveled by conventional automobiles, but four wheel drive is advisable for the side trails.

There undoubtedly are many types of material yet to be discovered in this interesting country. Waterholes, which are few and far between, often record the occupancy of Indians in red vanadium and yellow carnotite painted pictographs, or in incised petroglyphs. Brilliant flints and jasper of every known color abound near these waterholes and I found two arrowheads, a spear point and a fleshing knife.

Mine dumps in the Yellow Cat offer many samples of uranium ore. Ranging from the bright yellow of carnotite through the dull greens and blacks and brilliant blacks of pitchblende. Old vanadium mining dumps are the best places to find good specimens of uranium and red vanadium ore.

Plant life, while sparse, is repre-



sented by a variety of species—locoweed, greasewood, brittlebush, cacti and others.

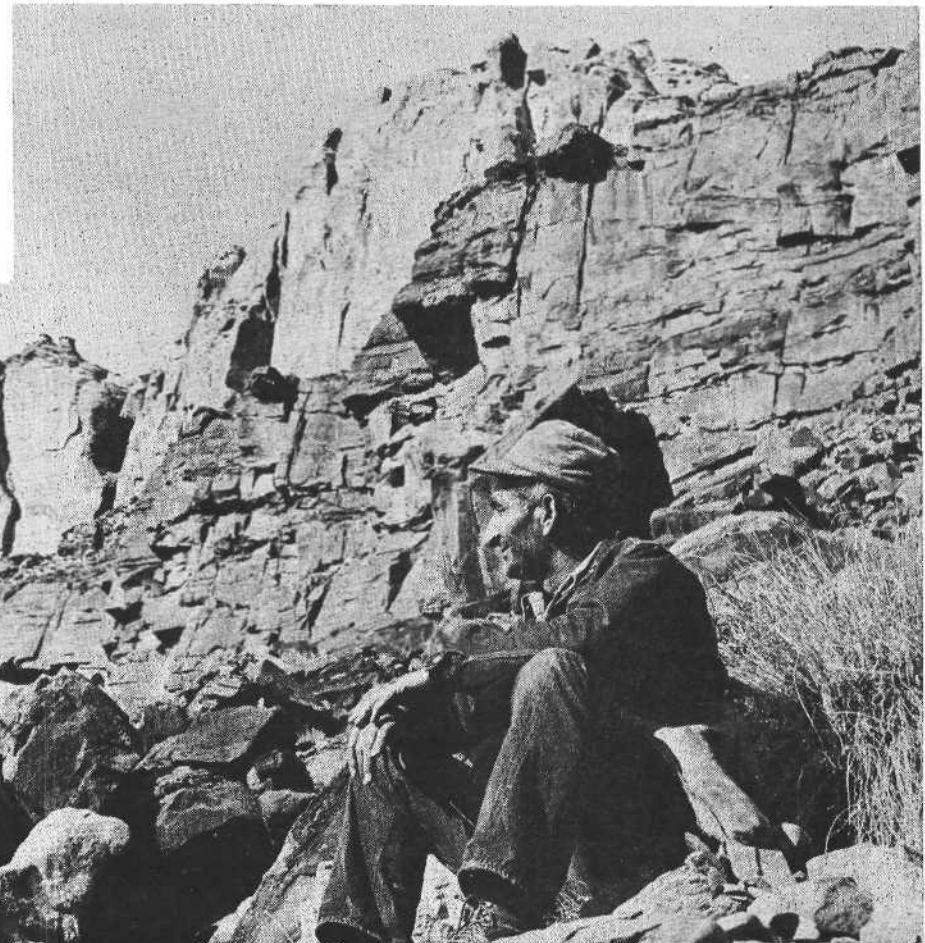
Mice, ground squirrels and small lizards were numerous around our camp and I saw many birds about, including roadrunners and desert spar-

rows. This also is the land of the cottontail rabbit.

Spring is the best time to visit the Yellow Cat district—and don't be surprised to find me, head down and pick in hand, looking for new wonders in the stones.

*Top—Jeeps are best suited for travel in the Yellow Cat district. In this wash the author found beautiful specimens of black and green opalized wood.*

*Bottom — Uranium hunter Pasco Spadafora of Grand Junction, Colorado, rests in the craggy and rough-hewn battlements of the Yellow Cat district. Gizzard stones and petrified wood and bone are found here.*



# HISTORIC DESERT WATERHOLES VII

## Paradise Springs on the Mojave ...

To the pioneers of yesterday who knew it as an important watering place on the Mojave Desert and to the desert lovers of today who live there in contentment—no name serves quite as well for this little valley where the water bubbles out of the ground as does the name it has—Paradise Springs.

By WALTER FORD

"*It's* a paradise, boys, it's a paradise!"

Thus spoke the leader of a thirsty little band of emigrants as they got their first glimpse of a cool sweet water spring bubbling from the earth at the head of a little valley on the Mojave Desert. There was more than cool water here. Grass for their stock grew in abundance, mesquite beans were plentiful, and rabbits and quail could be taken with little effort.

Time has obscured the identity of this party, or its destination. Probably they were following the desolate Death Valley-Barstow trail by way of Cave Springs, or had drifted off the old Spanish Trail as it swung south from Bitter Spring to what is now the Barstow-Baker sector of Highway 91.

But the word of this refreshing waterhole in one of the most desolate areas in North America was passed along to other emigrants and prospectors—and eventually Paradise Springs became a name on some of the maps.

For three-quarters of a century this waterhole has been a rendezvous for prospectors. Some came to bathe in the warm mineral waters of other springs nearby. Some remained to prospect the hills and evidently they found a showing of pay ore for there are the ruins of an old arrastre, and numbers of abandoned shafts and tunnels.

At one time an effort was made to pipe water from Paradise Spring to the Olympus mine three miles away, but according to the late Dix Van Dyke of Daggett who was very familiar with this region, the mineralized water soon crystallized the iron pipes. When wooden pipe replacements were put in the water destroyed the metal hoops holding the pipe together.

Many years have passed since the first white travelers visited Paradise Springs, but to the group of former theatrical people from coastal cities who have established their homes there, it is still a paradise. Lacking

telephones, television sets and traffic noises, they do have such conveniences as gas refrigeration and battery operated radios, and above all, the freedom to live as they please.

Paradise Springs is now owned by Royal and Renie of Los Angeles. The owners were absent when I was there, but Olga Shuey graciously showed me around. A number of springs have been developed in the area around which permanent residents have erected living quarters or have parked their trailers. An interesting phenomenon of the area is hot and cold water issuing from the earth in close proximity. My guide pointed out two streams two feet apart that were flowing into a small tank—one icy cold while the temperature of the other ran well over 100 degrees.

The original spring flows from a cut in a low bank at the head of the valley. Two concrete bathing pools have been built a short distance from the spring, side by side, so that one may bathe in warm or cold water, as his mood dictates. Olga Shuey told me that the warm mineralized water had such curative powers that many visitors travel several hundred miles to bathe in them. She stated further that no charge had ever been made for use of the bathing facilities.

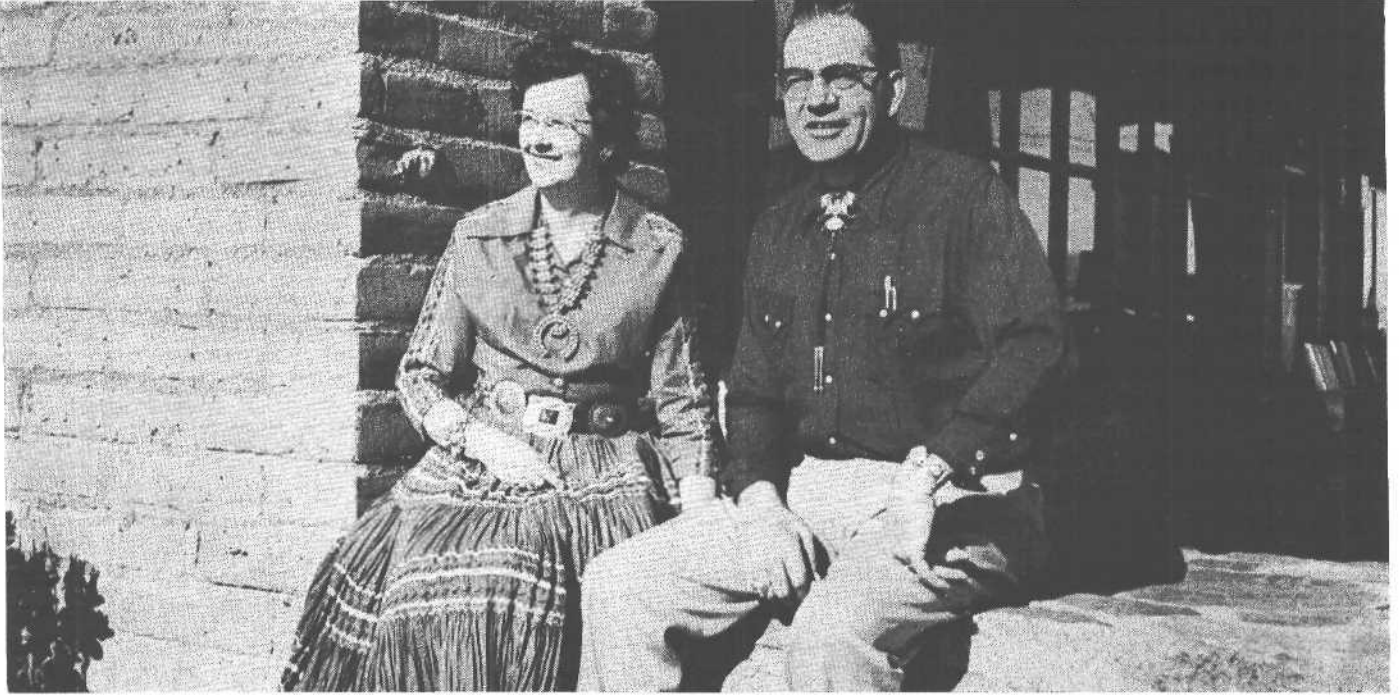
Driving back toward Barstow I passed a soldier walking nonchalantly toward Camp Irwin, minus a canteen and with the temperature hovering around the 100 degree mark, apparently confident that with the heavy flow of traffic toward the military area he would soon obtain a ride. I could not help but reflect on what a change a few short years had made. This was the road that was formerly little more than two ruts, over which only the most foolhardy would venture in the summer without sufficient water, and along which Adrian Egbert used to maintain bottles filled with water to alleviate the sufferings of such travelers.

Paradise Springs is located one and a half miles west of the Camp Irwin road and 20.5 miles northeast of Barstow where a metal sign indicates the turn-off. While visitors are undoubtedly welcome, it should be remembered that Paradise Springs is private property and that the common courtesy of announcing one's arrival should be observed.

*The author kneels at the original spring which still flows from the base of a dirt bank at the head of the valley.*







*Frances and Zeke Cornia of Buffalo Trading Post.*

# Traders in Apple Valley

Frances and Zeke Cornia found the end of their rainbow in Apple Valley on California's Mojave Desert. True—there was no pot of gold awaiting them there, but they found more important things—health, work that paid a fair reward, and the opportunity to be of service to their neighbors.

By RANDALL HENDERSON

Architectural photography by  
Douglas M. Simmonds, Los Angeles

**M**Y ACQUAINTANCE with the Cornias began in March this year when Cyria and I visited their attractive trading post four miles from Victorville along the paved highway that connects Apple Valley with its nearest railroad.

Inside the adobe walls were many customers—folks who had come here to obtain Navajo silver and turquoise, pottery from Santo Domingo, basketry, ceramics, hand-tooled leather — the finest handiwork produced by both Indian and white American craftsmen.

Zeke and Frances were busy with

their customers, but I noted that it was no ordinary curio store. Housed in a newly constructed and very distinctive sales room, with living quarters adjoining, the structure is a pleasing blend of Indian pueblo and modernistic design, having the most substantial and attractive features of the Southwest's original architecture modified with the materials and lines of modern planning.

Later that evening we sat before the huge native stone fireplace in the living room of their spacious home. Beyond the partition was the shop where they spend their working hours serving

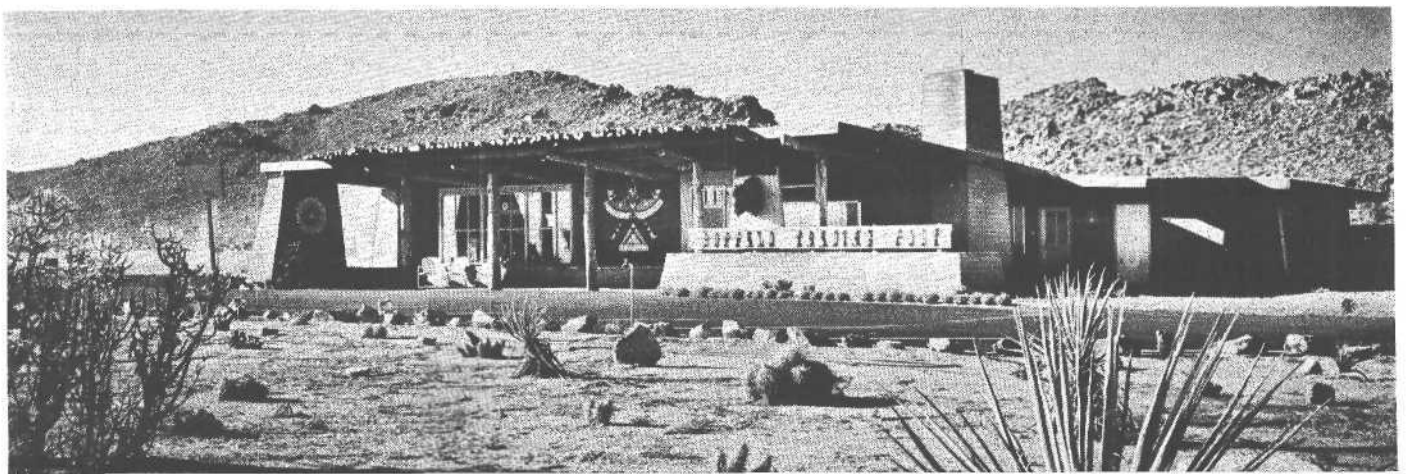
customers who come here to obtain the high quality crafts products on display. But when the day's work is ended they close the door to their world of commerce and live with their books and hobbies in an atmosphere of exquisite Indian furnishings.

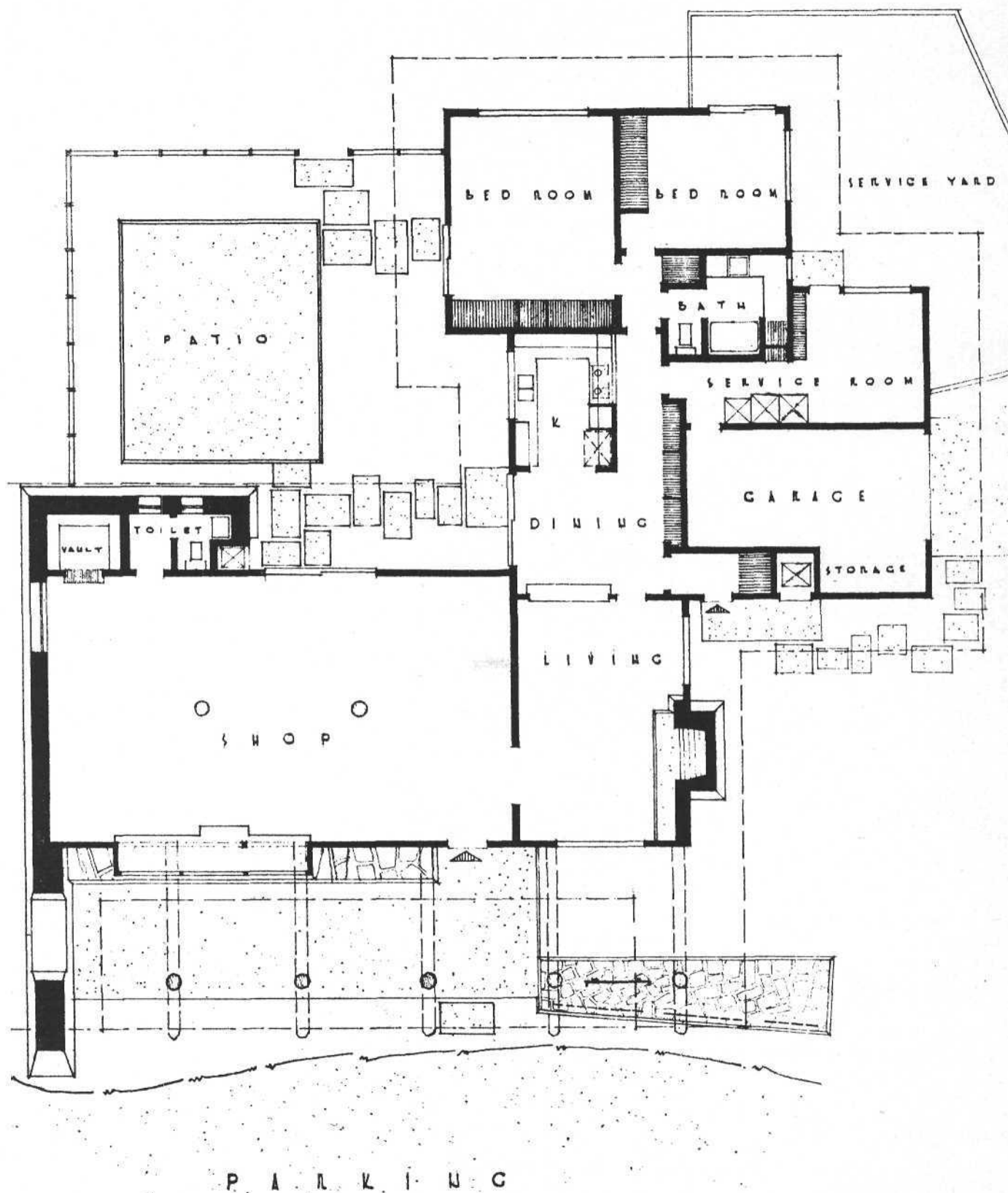
I wanted to know what kind of people had created a place so charming. Frances and Zeke and Danny, their 12 year old son, were modest, but cooperative in answering my questions.

Zeke is 54, and they came to Apple Valley in 1947 from Long Beach, California. Both Zeke and Danny were bothered with sinusitis and their doctor had advised them to seek a dry climate. The new Apple Valley community development was much in the headlines at that time, and this high desert valley seemed to offer opportunities for a family too young to retire.

Zeke left the automotive reconstruction business in Long Beach, and they

*An attractive blending of Indian pueblo with modern design.*





*Floor plan of the trading post and living quarters. McFarland-Bonsall, Architects.*

planned and built the Black Horse Motel in Apple Valley. They are fond of horses, and have done much riding, and the new motel was designed for horsemen and their families. There were eight apartments, and stall accommodations for riding animals. Their place became a popular rendezvous

for visitors who would bring their mounts to the desert in trailers for a weekend of riding.

Zeke had always wanted to have a trading post, and after the motel was opened they decided to put a couple of show cases of Indian jewelry in the office. In seeking new stocks of crafts-

work they became acquainted with E. M. Daniels, veteran Indian trader at Fontana, California, and he became their main source of supply, and taught them much about the business. The silver and turquoise secured through Daniels was of exceptional quality, and their jewelry business prospered—in



fact they found it more satisfying than motel operation.

Then in 1955, Daniels wanted to retire, and the Cornias made new plans. They would sell the Black Horse and build a trading post — stocked with the Indian crafts goods their trader friend had collected during a lifetime in the Southwest.

One of their customers at the Black Horse Gift Shop was Douglas McFarland of the Los Angeles architectural office of McFarland-Bonsall, and when they learned that he was familiar with the Spanish and Indian architecture of the Southwest, they arranged with him to prepare the plans for the new trading post.

The building is a combination of adobe and wood, with rock wool in the frame walls, and composition board in the roof for insulation. Beam ceilings and lodge-pole arcade carry out the pueblo design, and this is further emphasized by gorgeous Navajo rugs and other Indian handiwork for decoration. A central gas heating unit with under-floor ducts to every room supplements the fireplace as a source of warmth. The building is so well insulated that cooling equipment for summer weather has been found unnecessary.

Set well back from the highway, with a low ridge of mountains as a backdrop, the building in its landscape of native shrubs and rocks invariably attracts the attention of motorists on the Apple Valley-Victorville highway.

Known as the Buffalo Trading Post, a buffalo head is mounted on the front wall at the entrance to the building. The front of the building is decorated with typical Indian art, done by Jim Pahawk, Cherokee Indian.



*An orderly well-kept shop of fine craftsmanship.*

The Cornias do most of their own sales work, and they enjoy it. They have become quite expert in judging the quality of crafts products, and are very selective in their choice of merchandise to be displayed in their post. Ninety percent of the Indian products are reservation made, much of it obtained from the Navajo Arts & Crafts Guild at Window Rock and from Zuni Pueblo. They have ceramics from the Sims Ceramics studio in Apple Valley and from Desert House in Tucson, Craftsman copper from Costa Mesa, California, Navajo rugs from the reservation, Chimayo blankets from New

Mexico and a beautiful collection of Indian basketry which they acquired from the Daniels' collection.

Both of the Cornias are active in civic affairs. Zeke has been president of both the chamber of commerce and the Lions' Club in Apple Valley. Frances is program chairman for the Apple Valley Women's Club.

The Apple Valley community which they selected for their home is unique in many respects. Newton T. Bass and Barney Westlund, the original developers of the community, planned their project for spacious living. There are no crowded subdivisions. The building sites are large, the streets wide, and most of the residents of the wide valley have chosen to do their landscaping with native shrubs and rocks, with of course a generous sprinkling of Joshua trees which are so conspicuous on this part of the Mojave desert.

There are no tall buildings in Apple Valley to shut off the distant horizon. The ideas of space and individuality are well illustrated along the wide business street. The old custom of creating a canyon of brick and cement and calling it Main street, was discarded in the planning of this community. In most instances the stores and shops are of the ranch type of architecture, each an individual unit with spacing between, and ample parking front and rear.

This is the place the Cornias selected for their desert home. The sinus trouble that brought them here has long since disappeared, but they are happy in what they are doing and have no thought of ever leaving the desert.

*Living room and fireplace in the Cornia home.*



# Cactus Without the Thorns . . .

Nature spent millions of years developing a spiny protective armor for prickly pear cactus—and then Luther Burbank in 15 years reversed the process. Here is an amazing story of plant selection—"the most important record of my entire work," Burbank commented in 1915.

By EUGENE L. CONROTTO

**D**URING HIS long and illustrious career Luther Burbank experimented with 10,000 species of plants. He took the pit out of plums and the acid out of berries; he produced brilliant flowers and developed fruit to pre-determined specifications of size, taste and appearance; his grasses were hardier; where wind damaged corn he developed a hybrid that grew so fast and was so strong that it was never bothered by winds; he made better beans, squash, grapes, pears, apples, carrots, figs, melons, peas, artichokes — and he took the spines out of cactus.

"My work with cactus is the most important story to be told in connection with the record of my entire work," declared Burbank in 1915 when he was 65 years of age.

Strange for the creator of Burbank potatoes to make such a statement about those grotesquely shaped inhabitants of the arid places; strange for the greatest botanist who ever lived to place the thorny cactus at the zenith of his 10,000-unit parade of plants, ranking it above wheat, above the carnation.

While in the floral world Burbank

developed new beauty in many species, his quest always was for adaptability and hardiness. He felt that if his experiments did not lead to greater utility—to service for mankind—then his efforts were useless.

Long before the turn of the century Burbank gave much thought to the cactus and its arid home. Here is a plant, he reasoned, that is denied a drop of rain for a year, two years—even 10, and yet still gets enough moisture out of the soil and air to build a structure that is 92 percent water.

Burbank started his experiments with cactus one day after he reflected that every plant growing on the desert was either bitter, poisonous or spiny. The bitterness, the poison, the spines—these were Nature's defensive armor—developed for the purpose of survival.

"What might have been a food plant equal to the plum transformed itself into a wild porcupine among plants; what might have been as useful to the cow as hay changed its nature and became bitter, woody, inedible; what might have been a welcome friend to the weary desert traveler grew up, in-

stead, into a poisonous enemy," commented Burbank.

But, since plants were on earth long before foraging animals—this protection was acquired. Burbank quickly concluded that there was a time in the history of the cactus that it did not need a defense—a time when it did not have barbs.

The Southwest was once a great sea, Burbank explained. Before evaporation of this inland sea was complete, the heat and moisture and chemical constituents of the sandy soil combined to give many plants an opportunity to thrive. Among these was cactus.

As the heat began to parch the former sea bottom the cactus started its first great adaptation. It gradually dropped its leaves to prevent too rapid transpiration, sent its roots deeper and deeper into the sand, thickened its stalks into broad slabs. During this time, of course, many species, unable to adapt to the heat, were lost.

A few more million years and then animal life appeared on this vast sea bed. These animals found the plants excellent forage. Vegetation began thinning out while the animals, with still abundant plant life to feed them, multiplied rapidly until a new balance was struck. Many more species of plants were lost until the cactus found itself but one of a dozen hardy ones left.

Out of every million cacti eaten to the ground by animals perhaps only

*A prickly pear cactus hedge.*





a thousand or two of the hardest had stamina to throw out new pads—to try again. These plants eventually sent up an ineffectual modified fruit bud or leaf in a desperate attempt at protection. But, this proved too soft and of the thousand or two left from the original millions there may have been but a hundred able to stand off the new onslaughts.

This hundred, stronger than those that had given up, sent up new leaves. Each new crop the hairs became stiffer and longer until finally, even if only one out of a million was left, there developed a cactus which was effectually armored.

One such survivor out of the billions upon billions of cactus plants that had grown before, would have been sufficient to have covered the deserts of the world with its progeny. One cactus may have fathered and mothered all the cactus in the world today!

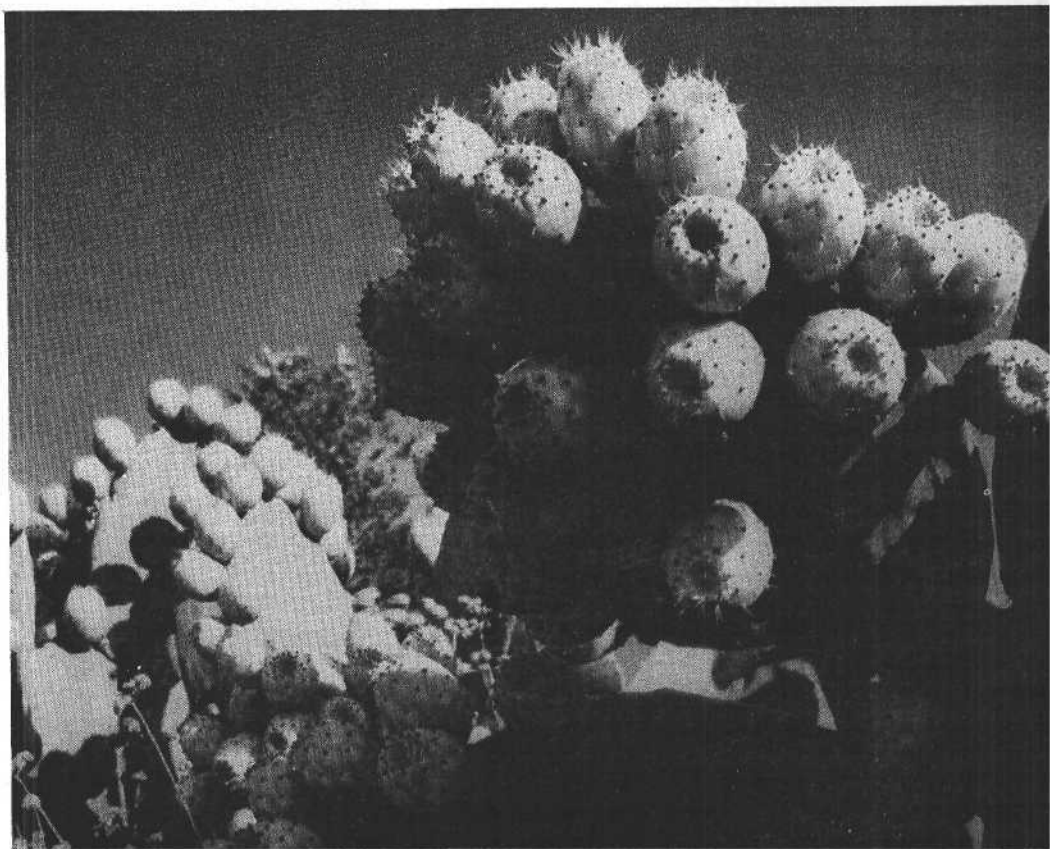
Burbank's job would be to go back through the ages and return to the earth its long lost spineless cactus. He knew it would take a long time. Actually, he accomplished in 15 years what had taken Nature several millions of years to do, but 15 years in the life time of a man is a long time. Of course he had several thousand other projects going at the same time and the cactus time was hardly noticed.

But, what made Burbank consider this experiment his most important—even before he started on it? True, the plant was adaptable and hardy, but it had a third feature when added to the other two which made it, in Burbank's eyes, of prime significance to man. This characteristic was productivity. An average annual yield for cactus planted on even the poorest soil was 18,000 pounds of fruit per acre.

"The possibilities of production on good soil and with fully matured plants of the perfected varieties are probably greater than those of any other fruit-producing plant. With perfection cactus should reach an astonishing productivity of 100 tons per acre!" Burbank declared. And this fruit contained 14 percent sugar and small amounts of protein and fat. Thus, Burbank reasoned that man could reap 14 tons of energy-giving sugar per acre with the cactus.

Fruit production by cactus was not, of course, new in Burbank's day. People of the Mediterranean basin and Indians of the Southwest had made cactus fruit an important part of their diets long before. There is no known standard for comparing the taste of this fruit. In general, it combines the taste and texture of a melon and raspberry.

But, Burbank did not regard cactus



*Massive clusters of cactus fruit. Burbank's experiments told him that an acre of cacti yields between 150 and 300 tons of new forage annually besides nearly half as much fruit. Photograph by Harry Vroman.*

primarily as a fruit-bearing plant for man. Rather he saw the great possibility its juicy pads held as a feed for livestock, especially on the open ranges of the arid Southwest.

In pioneer days early settlers often saw cattle and antelope eat cactus that somehow, usually by fire, had lost its spines. It was considered excellent forage in this land where other succulents could not secure a foothold. Cattle and sheep owners often were forced to send crews out to burn the spines off of cactus and to feed it to the livestock in times of drouth. This was an emergency measure, however, for the high cost of gathering

and burning the cactus was only justified when it was a question of life or death for the livestock.

Nature has produced a few spineless cacti, but these are all small and inconspicuous species and very bitter tasting.

Cactus grows so rapidly under favorable conditions that a three-year or older stand will gain between 150 and 300 tons of new forage per acre annually besides nearly half as much fruit.

Burbank decided to attack the problem of producing a spineless cactus by hybridizing known partially spineless species with large spiny ones followed by a rigid program of selection.

He felt that from the standpoint of economic value, one of the *Opuntia* species—the cactus commonly known as prickly pear—offered the greatest possibilities. It is hardy, adaptable, easily grown and very productive.

Finally, his experiments were started. The cactus blooming season was a period of torment for Burbank day and night, for he found that he could not avoid the spines while hand pollinating and inspecting the cacti. Many of the species had flowers that opened only during the hottest part of the day, and some of the blossoms remained open for only 15 minutes. The atten-

#### WHY NOT MORE CACTUS?

Luther Burbank over a period of 15 years devoted much time and labor to the breeding of spineless species of cactus—feeling that he was rendering a great service to mankind, and especially to the cattle industry. The readers of *Desert Magazine* would be interested to know why a food plant which yields so much forage value in a land of little rainfall is not being cultivated more widely for that purpose by the cattle industry. Comment in answer to this question will be appreciated by the editors of *Desert Magazine*—to be passed along to our readers.

dant had to be on the spot when the critical time came.

Burbank used a watch crystal as a vessel in which to collect the pollen. When the plant to be pollinized was ready to bloom, its stamens were removed just before they matured and pollen dusted from the watch crystal with a camel's hair brush over receptive stigma.

While in the early hybridizing stages he discovered a curious feature in cactus. In crossing the giant opuntias with smaller spineless species the hybrid was intermediate in all details—size, stem and manner of growth and form of pads—except one: the hybrid blossom was relatively enormous—much larger than the blossom of either parent. These hybrids bred true to form and showed no tendency to racial variation in the second generation. Bur-

bank explained the blossom phenomenon in this manner: the floral envelope occupies a position in the hereditary scale somewhat different from that of the main stem of the cactus plant. The flower is a relatively recent development in the history of plant life and was not governed by the same forces that determined that the hybrid should be an intermediate.

Years of rigid selection produced a cactus that had no spines. Every seedling that showed any propensity to bear spines had to be eliminated. Before too long Burbank was able to make that choice as soon as the seedling popped its first leaf out of the ground. In due time he developed his spineless race—a plant that showed a reassortment of hereditary characteristics. His final product was exactly what he had started out to produce: a

gigantic cactus overtopping all its known ancestors in size and surpassing them all in succulence, producing fruit of unpredicted excellence in almost unbelievable quantity and having a surface as smooth as the palm of a hand. At the end of 15 years he did not have one, but several new species of spineless cacti of the opuntia family. He had plants that produced a wide variety of fruit in size and form as well as texture and flavor.

Burbank had an acre and a quarter planted to spineless cactus at his Santa Rosa, California, experimental farm. Despite the fact that he had 2500 other experiments going at the same time, visitors were time and again lured to the cactus. They stood before the acre and a quarter jungle of smooth green pads, awed by the miracle performed by this wizard of the plant world.

## Kane Creek Jeep Road Permits Glen Canyon Access to Rivermen

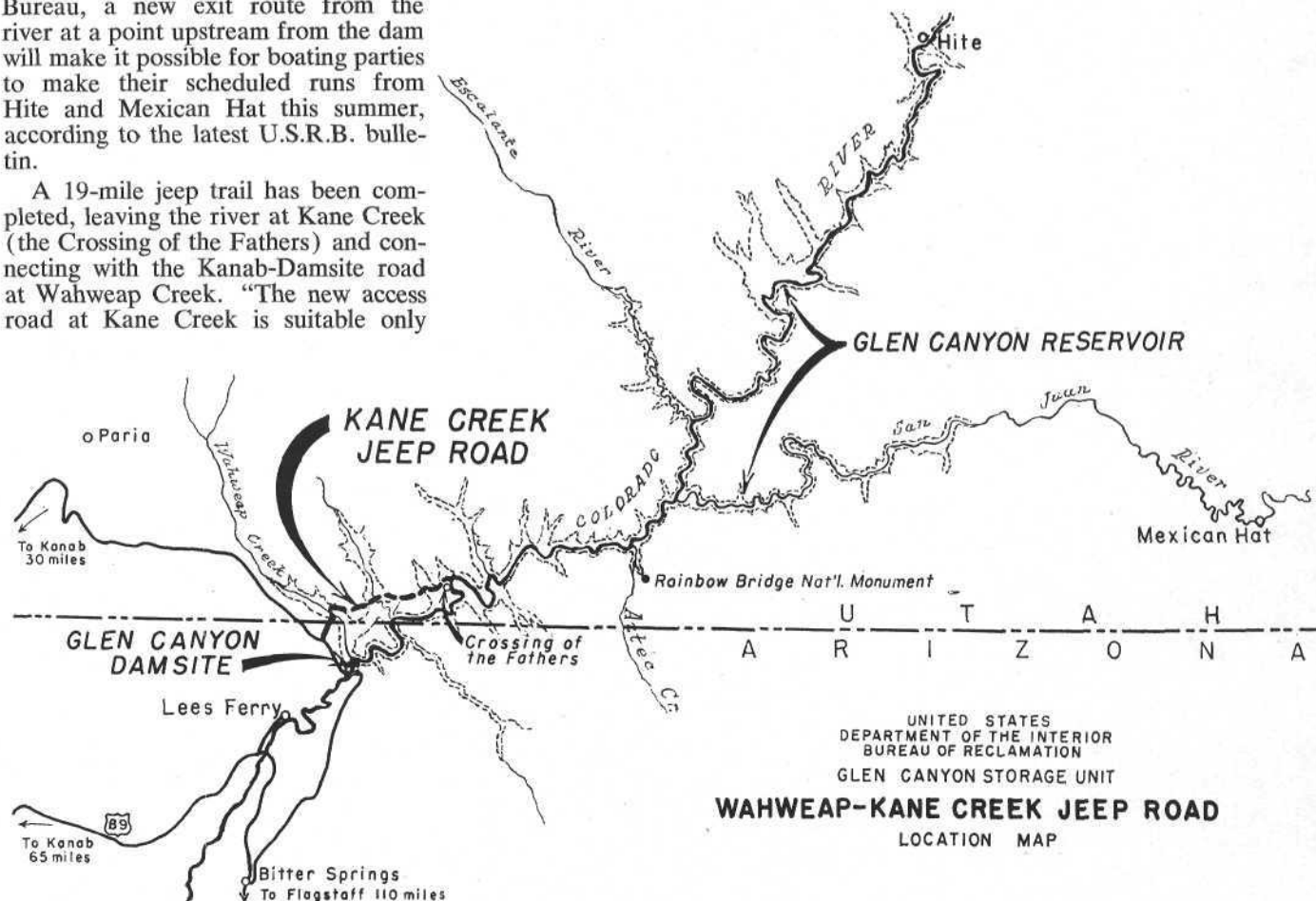
While the Colorado River at the Glen Canyon damsite will remain closed to navigation as previously announced by the U. S. Reclamation Bureau, a new exit route from the river at a point upstream from the dam will make it possible for boating parties to make their scheduled runs from Hite and Mexican Hat this summer, according to the latest U.S.R.B. bulletin.

A 19-mile jeep trail has been completed, leaving the river at Kane Creek (the Crossing of the Fathers) and connecting with the Kanab-Dam site road at Wahweap Creek. "The new access road at Kane Creek is suitable only

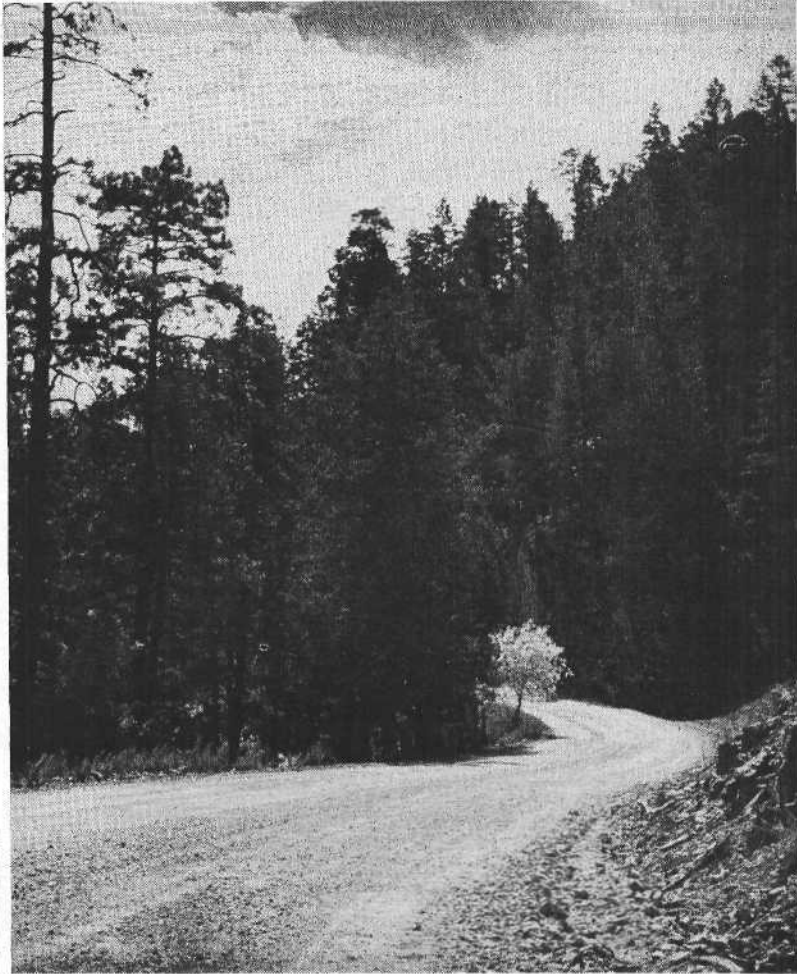
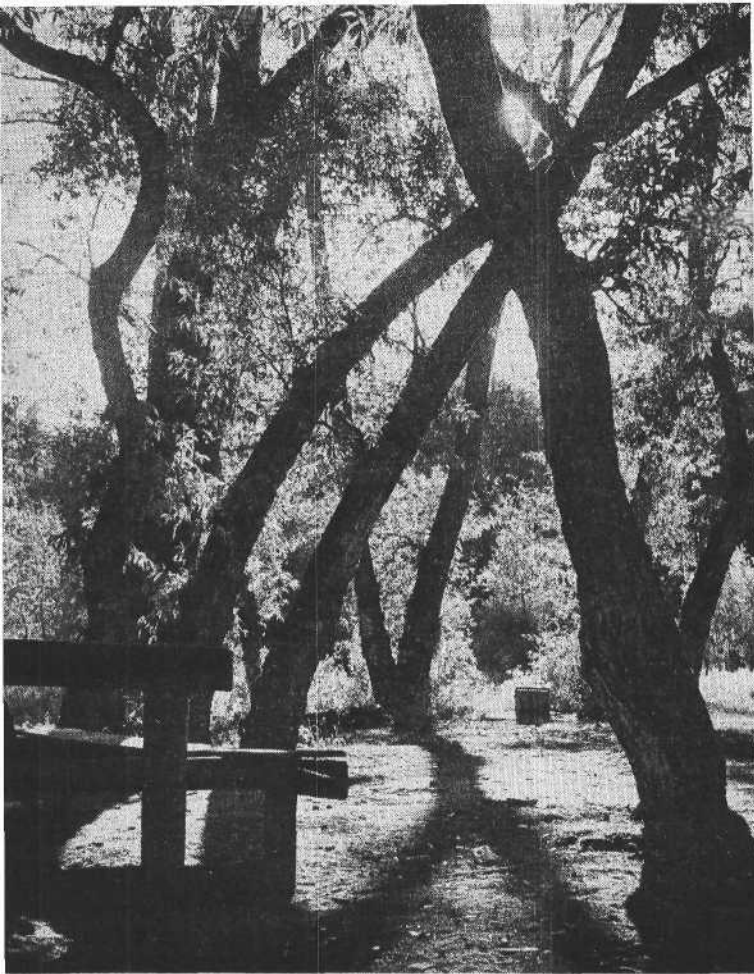
for jeeps and light pickup trucks towing light boat trailers," Regional Director E. O. Larson warned.

As access to Rainbow Bridge, Music

Hall, Hole-in-the-Rock, Mystery and Twilight Canyons and other scenic points in Glen Canyon are all upstream from Kane Creek, the new jeep road—for those who have the proper equipment—will serve to keep open for river travelers the most interesting sector of the Colorado and San Juan rivers in Glen Canyon, until such time as water begins to back up in the newly formed reservoir.







*Free forest camp in Taos Canyon four miles east of Taos. State Highway 38 between Questa and Red Mountain Pass.*

"... when we left Santa Fe that morning we didn't have the vaguest idea where we'd spend the night — and certainly we didn't dream that the week's rambling would carry us to Indian pueblos, prehistoric cliff and cave dwellings, Spanish mission ruins, deserted ghost towns in the mining country and along tumbling streams to frosty camps in the high mountains . . ."

By NELL MURBARGER  
Map by Norton Allen

## *Campers' Tour of New Mexico's Back Country . . .*

**F**LICKING ITS heels at the busy freeway, the ragged little road went galloping off into the summer hills speckled with junipers and sunshine. Soon as Dad and Mom and I saw it we knew it was a road we wanted to follow.

We never lack adventure on our camping trips for when we reach a road fork we consult our map to see which way seems to offer the greatest potential interest. If the road branches three ways and we each vote differently, we settle the matter by drawing straws. Our best trips are those in which we don't know where we are going until we get there!

For instance—late last August when we turned off the Albuquerque high-

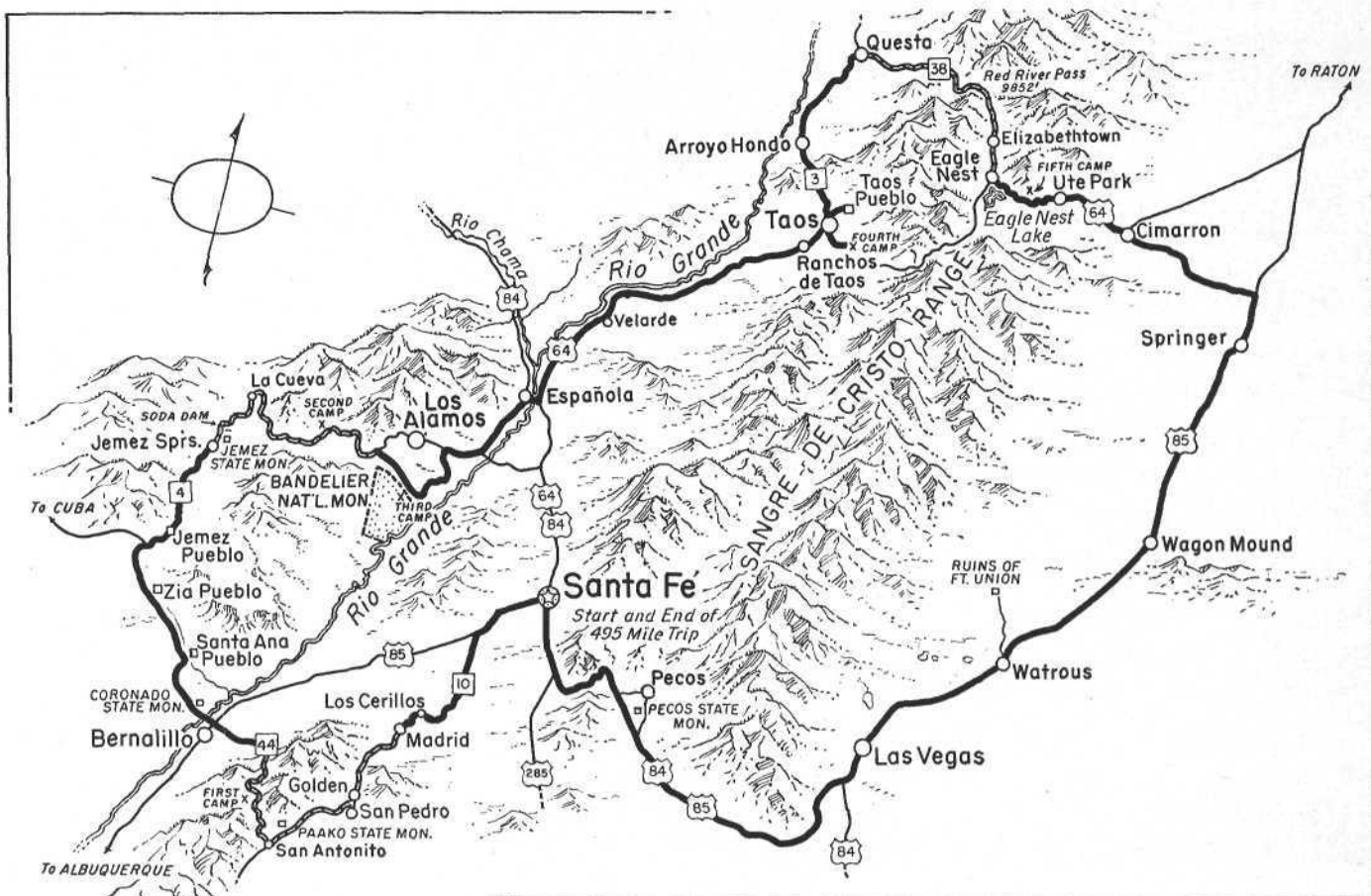
way onto New Mexico's Route 10. That week-long outing cost each of us only \$6.91!

Route 10 is a two-lane black-topped road that serves a few small towns, a great many huge cattle ranches and several mining camps.

Since we elected to bypass the famous Los Cerrillos turquoise mines situated only a few miles off our road, the first signs of mining activity we encountered were at Madrid—a strange little town almost swallowed by the mountainous jet-black dumps of her once active coal mines. Discovered in 1835, the mines were worked extensively beginning in 1869, and at their peak annually shipped 100,000 tons of anthracite and bituminous coal. All

went well until the major railroads began switching to diesel oil, whereupon the coal mine operators found themselves caught between rising production costs and a diminishing market. As the mines closed, the bulk of Madrid's population moved away and today many homes and business buildings stand vacant, and the gaunt black hulks of the mine buildings are silent and deserted.

Evidence of former mining activity increased with each mile traveled and before we reached the old town of Golden we were seeing prospect holes, old cabins, tailing piles and whole washes torn and tumbled upside down by man's everlasting search for gold. When Marshall's discovery touched off



the stampede to California in 1849, men already had been placing the washes in Golden for more than 300 years. Spaniards, in the 16th century, first worked this ground with Indian slave labor.

The San Pedro district, on a side road a couple of miles beyond Golden, was mined for copper as early as 1832 and had its greatest boom about 1880, when a sizeable city sprang up around the mines. Now, it is only a ghost town, and we had a great time prowling around the old ruins which include a big adobe church, beehive charcoal kilns, stone cabins, mine buildings and an old graveyard. Mom found some especially good dendrite, and on the dump of the main mine, a mile southeast of town, we found a number of nice quartz crystal, limonite, hematite, calcite, garnet and malachite cabinet specimens.

Soon after returning to Route 10 we paused for a brief inspection of the Indian pueblo ruins at Paako State Monument. Built of rubblestone and adobe, and abandoned prior to 1670, the highest walls remaining are not over four or five feet above the ground, but the forms of the separate rooms are clearly defined, and everywhere we looked we saw fragments of prehistoric pottery.

We camped that night in the Sandia Mountains in a grove of giant Pon-

derosa pines at an elevation of over 8000 feet. The free campground was big and clean and almost untenanted; there was much dry wood and cones for our campfire and a little breeze was making music in the tops of the tall pines. We knew it would be a grand night for sleeping—and it didn't worry us one particle that we only had traveled 63 miles that day!

We planned to start early next morning—and would have, except for a mother deer and her twin fawns, a couple of funny looking squirrels with black tufts on their ears, and a half dozen crested jays. They all seemed to think we should feed them before we left camp, and Dad seemed to think so, too.

Then we drove to Bernalillo where we crossed the Rio Grande and looked in on Coronado State Park. Embracing the site of two pre-Columbian Tiguex ruins, Kuaua and Puaray (now partially restored) this generally is supposed to have been the site of Coronado's headquarters in 1540-42. From the park we continued northwest on Route 44 through a colorful and scenic area of eroded canyons and cliffs in which we found some nice specimens of petrified wood.

We were entering Indian country now, and frequently we met whole families trudging along the road or riding in rickety buckboards or covered

wagons drawn by horses and mules. They were from the pueblos of Santa Ana and Zia, whose sand-colored walls and flat roofs were visible on a bench across Jemez creek about a mile northeast of our road.

Compared to Zia and Santa Ana, Jemez is a Johnny-come-lately town, built only 257 years ago. The original pueblo to occupy this site had around 500 inhabitants at time of the Pueblo Revolt in 1680. The Spaniards, on their return to power in 1696, chased the Jemez folk into the hills and destroyed their city. Gradually they filtered back to their ruined homes and built the present pueblo in 1700.

We drove slowly through the town from one end to the other, seeing outdoor ovens, corn racks, meat hanging in the open to dry—but we didn't make the acquaintance of any of the shy citizens.

Thirteen miles beyond is Jemez Springs (*Desert*, Aug '56), a small resort grown up around a hot artesian spring. A little farther up the road is one of the loveliest church ruins in the entire Southwest—the old Spanish mission of San Jose de Jemez. Completed in 1617 and abandoned five years later due to constant aggression by the Navajos, its roofless sandstone walls stand to heights of 30 and 40 feet, and are stout and plumb despite wind, weather and vandals of more

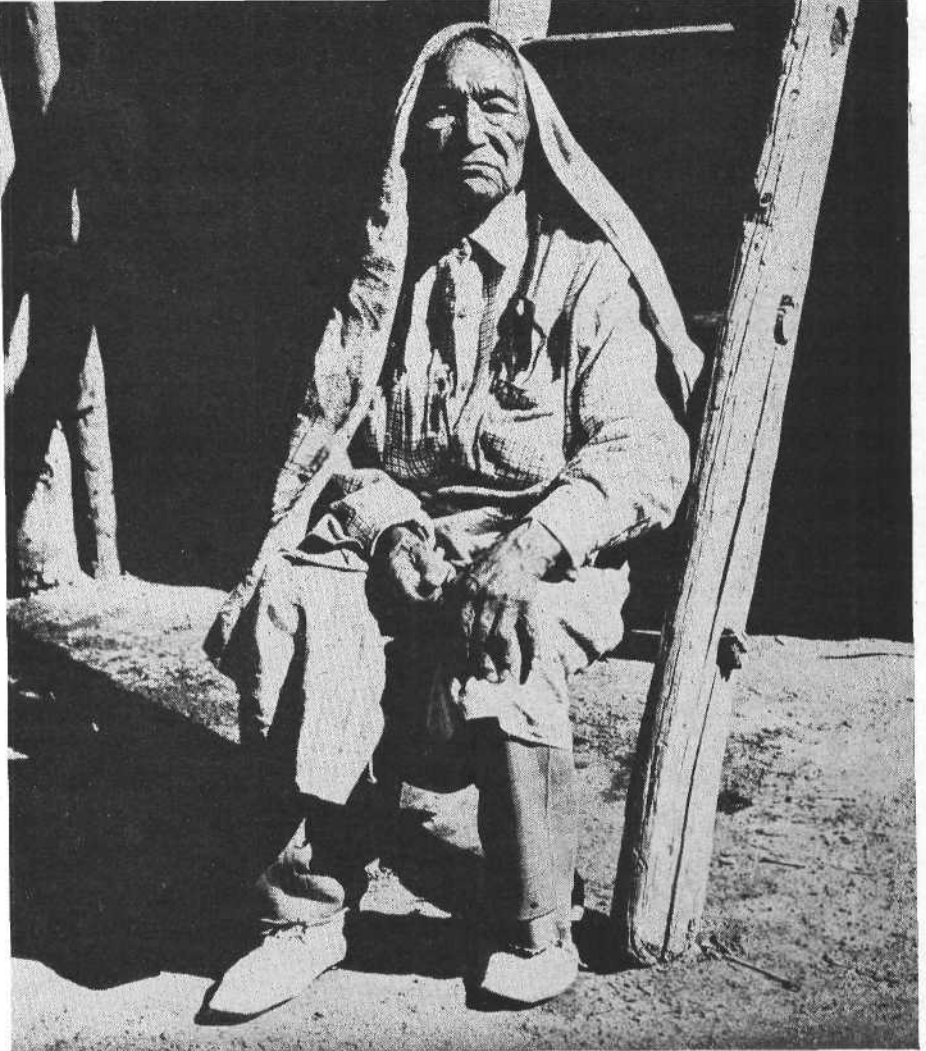


than three centuries. We ate lunch at Soda Dam, a strange geological phenomena extending across Jemez Canyon.

The dam is a coral-like barrier 350 feet in length, 50 feet high and 50 feet wide. Formed of minute calcium particles contained in the water of nearby soda springs, this natural stone plug is glistening white with streakings of vivid color. It has the general appearance of a huge dinosaur—lumpy, wrinkled and very fat. The bright little stream in the canyon has cut a tunnel through the dam from which it emerges as a pretty waterfall, and hot-water springs still send their calcium-laden waters trickling over the face of the formation to keep it perpetually plastered white and fresh.

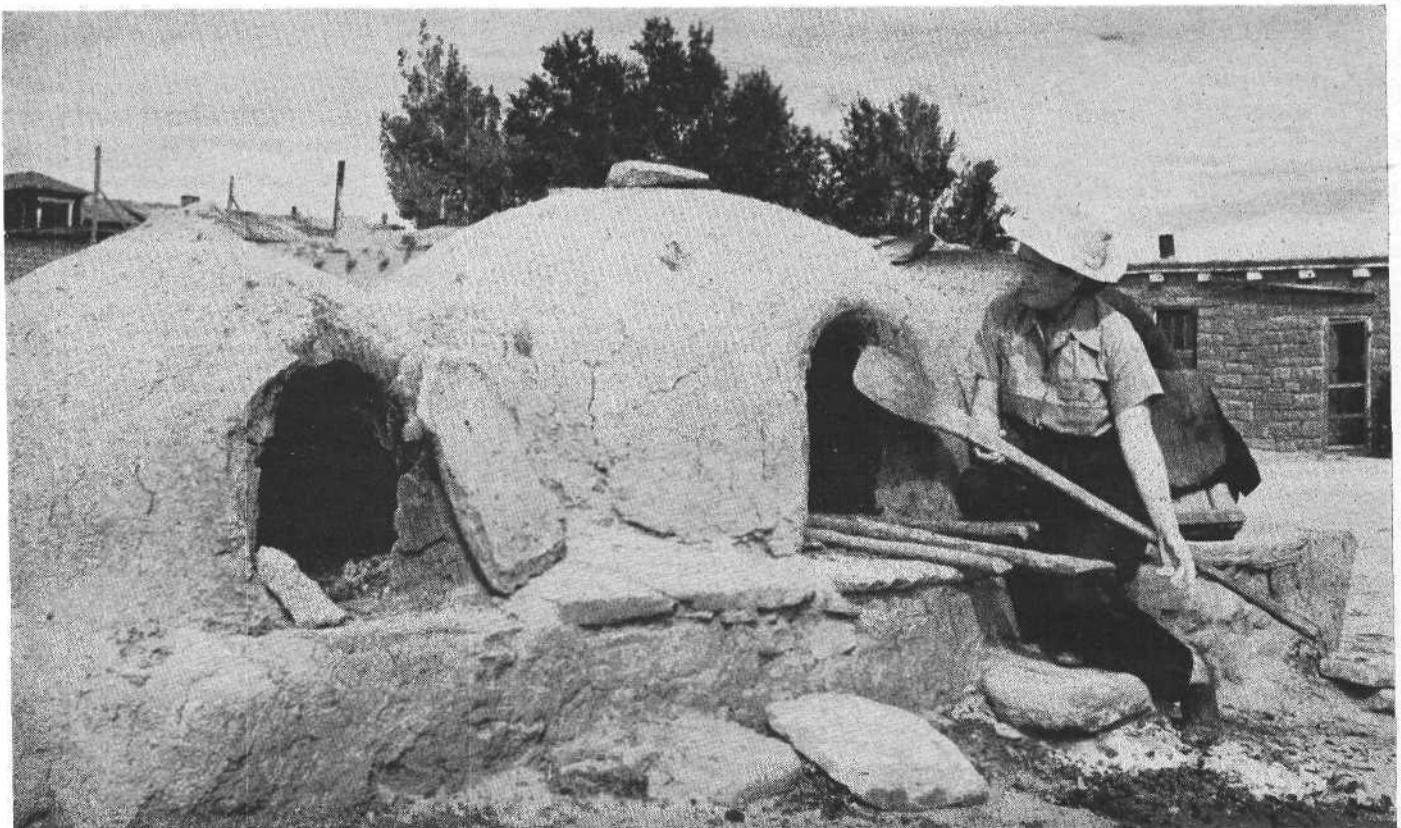
The narrow graveled road up Jemez canyon is bordered by a leafy jungle of tall cottonwoods, woodbine, clematis, Apache plume, scarlet mallows and sunflowers. We passed half a dozen beautiful camping sites, each providing limitless water and shade and wood.

At Los Conchos campground, in Santa Fe National Forest, we found a perfect jewel of a place. In this clean grassy clearing, bordered by tumbling Jemez Creek and surrounded by tall firs and quaking aspen, were two log cabin snow shelters the Forestry service provides in some of its high-elevation camps. Each was equipped with



*Aged Indian of Taos pueblo.*

*The author examines one of the paddles used for removing bread from an outdoor oven in an Indian pueblo.*





*Taos Indian stands before the ancient adobe walls of her pueblo. Photo courtesy New Mexico Tourist Bureau.*

a wide stone fireplace—and soon as Mom saw this she declared, “We’re home!” Dad rustled some wood for the fire and she cooked a pot of beans for supper. We always carry a pound or two of dry limas, which cook well even at high elevations; and we’d bought a piece of ham that morning at Bernalillo. She made some dump-lings out of biscuit-mix and cooked them on top of the beans—and we wouldn’t have traded that meal and our little log cabin shelter for the best hotel suite in Albuquerque! Later in the evening we took a walk through the woods and found enough wild rasp-berries to remind us how good they taste.

Next morning found us rambling eastward, following the crest of the mountains and rounding the heads of deep canyons where exposed points revealed tremendous sweeps of coun-try. From the alpine vegetation we

knew we were traveling at a high ele-vation but we didn’t know how high until we started down into Valle Grande — a wide 176 square mile green saucer whose rounded bottom is 8500 feet above sea level. Geologists believe this is the largest volcanic crater in the world.

After driving through miles of moun-tain cattle range comprising the Baca Land Grant, we skirted Los Alamos, the forbidden city of the Atoms, and turned off to Bandelier National Mon-ument. Although it was only mid-morning and our travels for this day and the day previous had totaled but 105 miles, we like Bandelier and de-cided to remain there. It is a fascinat-ing spot and a wonderful place to camp—quiet and cool, with many tall yellow pines and boxelders for shade. Flowing through the heart of the camp-ground is pretty little El Rito de los Frijoles—the Little River of the Beans.

There’s a museum with interesting archeological exhibits, and park ran-gers conduct several foot tours daily through these grand old cliff and pueblo ruins.

In the afternoon I rented a horse for two dollars and rode up the canyon, seeing several deer and lots of squirrels and chipmunks. At dusk a hand-some mother skunk and her troop of youngsters came down to the camp-ground for tidbits.

Between Espanola and Pilar, about 30 miles, we were in sight of the Rio Grande almost all the way. In this northern part of the state it is one of the most beautiful rivers in the South-west—wide, blue and sparkling, with every accessible cove ringed by fisher-men. Although we stopped half a dozen times along the way it was still early when we reached Taos.

Taos is fun! There’s no end of things to see and do. After visiting the collection of pioneer relics housed in the Kit Carson home, we went to the old plaza in the center of town, a fascinating place to sit in the shade of the trees and dream of the past while you watch the ebbing and flowing of the present. Taos Indians bundled in white bedsheets, artists in berets, cow-boys in battered felt hats and blue jeans, fishermen in bright plaid shirts, dudes in fashionable range garb; min-ers; tourists; ranchers; writers; all in-termingling and milling through this same old plaza that in earlier centuries knew the footsteps of such Western immortals as Milton Sublette, Dick Wooton, Old Bill Williams, Kit Carson, St. Vrain, the martyred Governor Bent and others.

We bought a nice steak for supper, added 25 pounds of ice to our portable ice box—enough to keep our food cold for another three days — and drove out Taos canyon about four miles to a cottonwood-shaded camp-ground near a tumbling little stream in Carson National Forest. Our travels this day had carried us 80 miles.

Next morning we visited Taos In-dian pueblo. We’re not too fond of visiting some of the pueblos—we feel uncomfortable because we are intrud-ers. But Taos Pueblo is different. Here it is strictly business. From each au-to-mobile load of visitors entering the pueblo the Indians collect 50 cents. An additional dollar is charged for the privilege of photographing the pueblo, but the right to take pictures of individuals must be negotiated sep-arately.

Ray Mirabel, pure Taos Indian and then governor of the pueblo, told us that the two huge adobe apartment houses, four and five stories in height, which face each other across Taos Creek, were built long before coming



of the Spaniards in the 16th century. Today they are occupied by nearly 1000 persons. In addition, the pueblo includes ruins of an old church built in 1704, a "new" church built in 1848, barns, corrals and other structures. We also saw many outdoor adobe ovens of the beehive type. It was baking day and everywhere we went we could smell the fragrance of burning pinyon wood and the savory odor of baking bread.

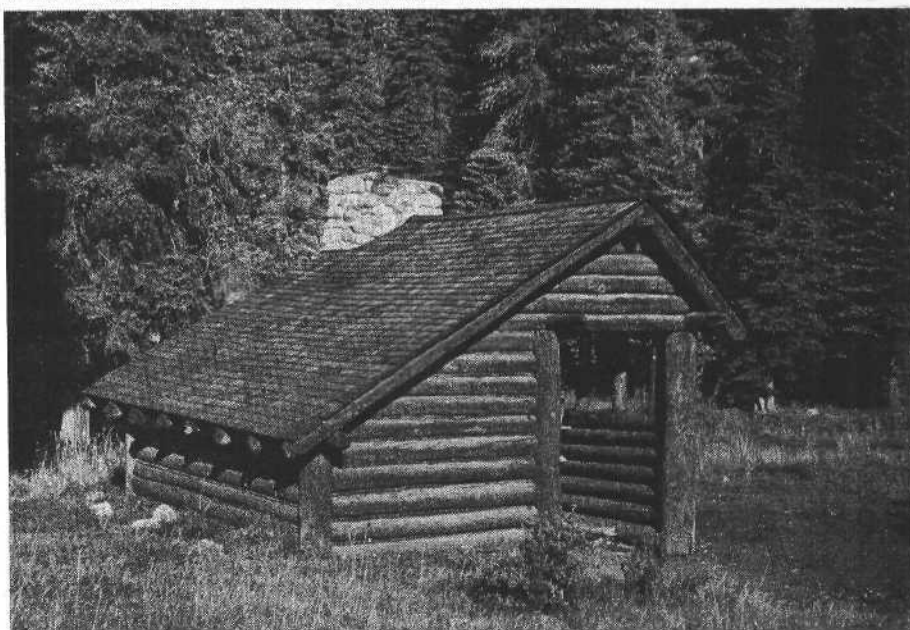
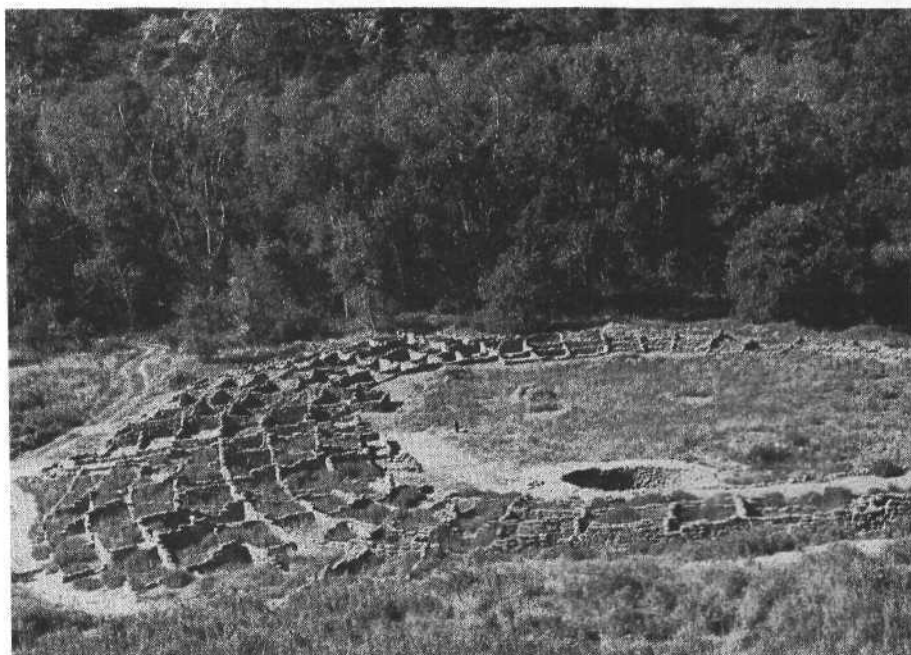
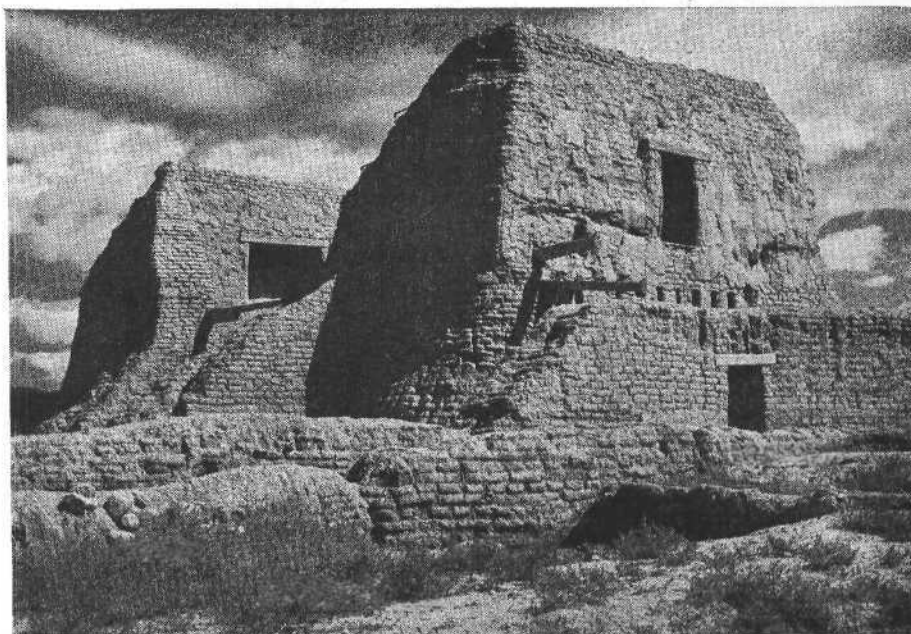
From the pueblo we continued north on State Route 3 to Questa, 20 miles south of the Colorado line, where we turned east up a scenic and densely-forested canyon to the summit of Red River pass, 9852 feet. Even at this height we still were overshadowed by the towering Sangre de Cristo range whose 12,000-foot peaks rose white and snowy only a few miles to our right.

In this majestic setting is Elizabethtown, the picturesque ghost of a boom-camp that flowered in the late 1860s and '70s. Within a relatively short while after discovery, every foot of pay gravel in a radius of 16 to 20 miles was staked; the new town, with a claimed population of 5000 to 7000, had become seat of Colfax county and was served by three stagelines.

Among the buildings yet standing we identified the schoolhouse and Catholic church, two saloons, several store buildings, a two-story stone structure that appeared to have been one of the hotels, and a large number of private dwellings. But the only person we found in town was a young Mexican woman who could speak enough English to tell us that only three families still lived there.

Winding down the mountain road we turned east on paved U.S. 64 at Eagle Nest Lake, and after traveling about six miles made camp near the headwaters of the Cimarron River in Cimarron Canyon Wildlife Area. Like the other camps we had enjoyed on the trip, this one had the usual facilities—tables, outdoor fireplaces, toilets, etc.—and was clean, cool, uncrowded and densely shaded by narrow-leaved cottonwoods, pines and firs.

Shortly after crawling into our sleeping bags we were awakened by a rattling among the pans and dishes on the camp table. When Dad turned his flashlight beam in the direction of the



*Top—Ruins of the Spanish mission near Pecos, completed in 1620.*

*Center—Ruins of Tyuonyi pueblo, Bandelier National Monument, N.M.*

*Bottom — A snow shelter in Los Conchos Forest Camp, Santa Fe National Forest.*

noise we were delighted to see that our nocturnal visitors were a big fat mother racoon and three nearly-grown young.

Although no more than a dozen feet from us, they showed no fear of the light but went right on with their ransacking. The animals found a bag of apple peelings and were as tickled as a bunch of kids with a new spotted pony! They squealed and fussed and snatched the peelings away from each other.

We wanted to be back in Santa Fe for the Fiesta on Labor Day weekend, so we regretfully broke camp next morning knowing this day would see the end of our happy little circle jaunt to nowhere-in-particular.

Driving down lovely Cimarron Canyon we visited several historic buildings in the old plains town of Cimarron—once the capital of Lucien Maxwell's mighty land grant—and then we rolled up the miles, in quick succession, to Springer, Wagon Mound and Watrous.

We did not feel that we had time

to visit the many points of interest in Las Vegas. We did stop at the Old Spanish mission ruin at Pecos, now preserved as a state monument. Our last visit had been on a snowy March day in 1928, and it had changed little in the almost 30 years since. Brought to completion in 1620, at which time it was hailed as "a very splendid temple of distinguishing workmanship," the fine old structure has been in a state of ruin for over 200 years, but its walls are still stout and plumb, and almost unbelievably massive.

From Pecos State Monument, it is only 25 miles to Santa Fe and noon found us back at our starting point. In six days we had driven 495 miles and our cash outlay for the entire trip (exclusive of the imperishable food and films we had carried with us from Santa Fe) was only \$20.73:

29 gallons of gasoline	\$10.15
1 quart cylinder oil	.45
Fresh meat and bread	4.25
Admission and photography fee at Taos	1.50

Rental of horse at Bandelier	2.00
Ice cream	.90
25 pounds ice	.35
Postcards and pottery at Taos	1.13
	<hr/> \$20.73

Personally, I think this makes a pretty good case for camping. While I wouldn't recommend pulling a house trailer over the steep grade between Questa and Red Rover Pass—at least not without previous local inquiry—I see no reason why small-to-medium sized trailers cannot be taken over the remainder of our route.

As for Dad and Mom and me, the joy we gain from cooking over a campfire and spending our nights in a sleeping bag under the open sky is priceless—and neither do we feel that any sane itinerary is ever half as good as these whimsical wayward wanderings where we plot our route one road-fork at a time.

## THE *Desert* MAGAZINE CLOSE-UPS

*Ghosts of the Glory Trail*, Nell Murbarger's best selling book, has captured still another award. Latest honors came from the National Federation of Press Women which named it the best non-fiction book written by an American woman and published during 1956.

Miss Murbarger's book is now in its second edition and is published by Desert Press of Palm Desert, Calif.

\* \* \*

Having lived in Indian country most of her life, first near the Sioux in Nebraska where she was born, and later in Wyoming near the Wind River Reservation, moving to Flagstaff seemed like homecoming to Vada Carlson, author of this month's "Missionary to the Navajos." She has been a newspaper woman most of her life and is currently a feature writer and society editor of the *Arizona Daily Sun*.

\* \* \*

"The Treasure We Value Most" is Tom May's second *Desert* true experience story, the first appearing in the February, 1955, issue. A resident of Wilmington, California, where he is employed as a machinist, May is a native of Arkansas. An intractable outdoor lover, he admits he knows more about the desert and the mountains than he does about metropolitan Los Angeles where he lives with his wife, Gussie.

## Hard Rock Shorty of Death Valley



"Anybody ever get bit by a rattlesnake around here?" The question was asked by the newest arrival at the Inferno dude ranch.

Hard Rock Shorty was in a bad humor. He'd taken a job hustling baggage at the Inferno to get a grubstake for the next prospecting trip. The dude who wanted to know about the rattlers had brought 14 pieces of luggage along—and after prying all that "hifalutin' junk" out of the station wagon and stowing it away in the cabin Shorty was plumb disgusted.

"Sure there's rattlers here," he exclaimed, "an' they hate tenderfeet so bad they climb the outside of the house and come down the chimney to git a bite outta one."

The dude turned a little pale. "Are they really poisonous?" he asked.

"Hell man, them snakes is full o' pizen. Up here they gotta special brand o' pizen. Makes everything turn white. They even leave a white trail when they crawl around!"

"See all that white ground over there?" and Shorty waved toward

Death Valley's well known salt flats. "Snakes did that — jest crawlin' over the ground.

"Anything bit by them rattlers swells up bigger'n a barrel. Guess you never heerd about ol' Pegleg Pete. Usta prospect in them hills over there. One night Pete went out to set a coyote trap an' a snake nipped him in the leg. Happened to be his wooden leg, an' Pete didn't feel it.

"But twasn't long afore he was raisin' right up in the air. Kept on goin' up while Pete pawed the air with both arms and his good leg tryin' to find somethin' to hang on to. The pizen in that leg wuz swellin' it up like a tree trunk an' Pete wuz growin' higher every minute.

"Boys discovered 'im up there next morning 30-40 feet in the air."

Shorty started to walk away.

"But Mr. Hardrock, they didn't leave the poor man up there did they?"

"Hell no, they finally shot 'im down to keep 'im from starvin' to death."





*An elderly Navajo grandmother, crippled with arthritis, is assisted by Katherine Beard at last year's Christmas party at The Gap, sponsored by the Flagstaff Mission to the Navajos.*

## *Missionary to the Navajos ...*

The ancient ways run deeply in the veins of the Navajos, some of whom have never heard of the White Man's God or the miracles of modern medicine. Telling Christianity's story—and offering material comfort when the means are available—is the never easy but deeply rewarding work of Katherine Beard and other missionaries in Navajoland.

By VADA F. CARLSON

**O**VER THE VAST expanse of the Navajo Indian Reservation the leaden clouds hung low. Early-winter rainfall splashed monotonously into the reddish puddles near the dome-shaped hogan of the Tsosie family.

There was no sound from the hogan

and no smoke issued from the smoke hole, but Katherine Beard, field director of the Flagstaff Mission to the Navajos had noted the dejected team in the corral and the wagon beside the hogan.

She left her car near the summer

shelter and paused at the door of the hogan, as is the custom, before lifting the worn blanket and stooping to look inside.

A medicine man, his paraphernalia arranged on a strip of calico beside him, had just completed a sand painting of the moon, the rainbow and the corn pollen boy. Near the door an old woman sat on the cold ground, a nude youngster on her lap. Others of the Tsosie family sat in the gloom of the cold room, waiting for the sing to begin.

Miss Beard shook hands with the



*An open air church. Navajo Indian women at Black Falls hear the story of Jesus for the first time from a mission worker.*

grandmother before sitting down beside her.

"What is the matter with the little boy?" she asked the medicine man.

He was an old man and had known her for a long time. Their relationship was friendly since she had never interfered with his healing rites.

"His father looked at the full moon before the child was born," he answered soberly. "That is why this sickness has come upon the child. I will sing over him today, tonight and tomorrow. Then, if the moon does not hear and bring healing, they will take him to the white man's doctor."

Miss Beard looked at his medicine, sadly. There was an abalone shell filled with sacred herbs; feathers of the eagle, bluebird and hummingbird; pouches of sand from the holy mountains; two carved sticks representing the first man and the first woman; and several rattles, one of buffalo hide with the magic turquoise bead in the center and the buffalo tail hanging from it. And with these trappings, plus his chanting, he expected to drive the sickness from the child's body.

She looked at the gaunt little sufferer, his belly distended and his limbs looking like little brown sticks, and wondered if he would live long enough to see the white man's doctor.

The baby was placed, screaming with terror and discomfort, on the cold clammy sand painting, and his frenzied kicking soon destroyed the care-

fully made designs. The medicine man lifted his shrill voice in a chant which he accompanied with the dry rasping of the rattle. The family joined in. Rain dripped through the smoke hole. The sick child shivered and whimpered, his black eyes imploring.

Miss Beard closed her eyes and prayed.

After almost 25 years among the Navajo people, whom she loves, she is keenly aware of the problem of substituting Christianity for their primitive religion. To win them away from the dozens of superstitions that rule their every move is no small task. Only dedicated people who sincerely care for the Navajos as individuals could endure the frustration and the heartaches involved in missionary work.

However, being a dedicated person, and having boundless faith, she works on, encouraged by small signs of enlightenment that prove to her that missionary work is bearing fruit; that the little leaven is working in the mass of 80,000 Navajos on the reservation, some of whom have never heard of the white man's way of worship.

The encouragement she receives is typified by the incident that happened on a recent Sunday.

The meeting room at the Flagstaff Mission to the Navajos was filled with a congregation of Indians, mostly Navajo, who had come for the morning service, when a tall Navajo, his long hair bound into a knot, staggered up to the door.

Miss Beard invited him in.

"Oh, *She-ma zani*," he said in Navajo, meaning "older mother," the name given to Miss Beard since her hair has turned gray, "I am so ashamed of myself because I get drunk, lose my money. So I want to come here. I want to find out what they got." He pursed his lips, inclining his head toward the other Navajos.

They needed no signal from Miss Beard or her co-workers. Volubly they began telling the tall man what they had that was now precious to them, and he listened intently.

"We just stood back and listened, too," Miss Beard reported. "It was wonderful." Her kind, patient face broke into a smile and her eyes twinkled. "And, of course, that's what we've been working for all these years."

She looked out the back window to the foundation upon which the mission church will be built when funds are available and there was no discouragement in her bearing.

All that there is here—the Mission, an old house made over; and the front part of the church-to-be, at present serving as a storehouse—have been made possible through the generosity of church groups and individuals all over the United States. Those walls will rise, she is sure, in time to house the congregation that is already about to overflow the meeting room in the Mission. The leaven is working.



# These Mountains Are Only for the Sturdy

By LOUISE WERNER  
Photos by Niles Werner

**7**HOSE MOUNTAINEERS who have enjoyed the exhilarating experience of climbing in the rugged San Pedro Martyr range 125 miles south of the California border in Baja California, will be pleased to learn that the Mexican government has established the crest of this range—above the 5000-foot level, as a National Park — *Parque Nacional de Mexico*. The park extends 60 miles north and south along the ridge and includes the precipitous high point on the peninsula, Picacho del Diablo.

Actually the park was tentatively established six years ago when lumbering interests threatened to move in and denude the high slopes, but according to Alberta and Salvador Meling, whose San Jose ranch is on the western slope of the range, the official announcement of the park reservation has now been made.

The San Pedro Martyrs are only for experienced and well-equipped mountaineers because of their isolation, and their precipitous character. This fact was emphasized recently when an instructor and two students from a boy's school in San Diego became lost in the range, and at least one of them would have perished had it not been for timely rescue by Mountaineer Edward Bernhard, Sierra Club member of Coronado who happened to be climbing in the region at the time.

The misadventure occurred during Easter week this year when Roy Downs, 55, Richard McBean, 18, and Stephen Courtney, 16, of the Brown Military Academy hired a pack mule at the Meling Ranch for a 4-day outing in the San Pedro Martyrs.

When the Downs party, due back at the ranch Thursday, April 18, had not returned by Friday, Milt Farney, who had flown in to spend Easter with the Melings, circled the forest above and to the east of the ranch in his plane, in an effort to spot smoke signals or other evidence of the whereabouts of the missing party, but without success.

The pine forest, extending for sixty miles roughly north and south between elevations of 6000 and 9000 feet (west to east) is about 25 miles wide as a



*Portion of the San Pedro Martyrs—sharp granite ridges rise above deep gorges that wind out to the floor of San Felipe desert more than 7000 feet below.*

horse travels. A jeep road from the Meling ranch extends to the edge of the forest, but beyond that point the area is accessible only to horse and foot travel. There are no habitations, and few live streams or springs.

When the mule came limping back to the ranch April 21, Milt Farney flew out to the nearest phone, 40 miles away, and alerted the coast guard. The school was notified and within a few hours planes arrived at the ranch bringing relatives and a doctor, and a widespread search was started.

In the meantime Edward Bernhard, who with a companion had been climbing in the range that week, started out with Andy Meling, the ranch owners' son, and six Mexican vaqueros, to follow the tracks of the lost party. Two and a half days later the searchers reached the crest of the range at a point where the mule had turned back and the three climbers had started down Copal Canyon toward the San Felipe desert which lies between the San Pedro Martyrs and the Gulf of California on the east.

The San Pedro Martyr Range, highest on the peninsula of Baja California, is a majestic pine-clad landmark—but with neither trails nor habitations and only limited water. It is a place to be explored only by skilled mountaineers. This story reveals the penalty that may be paid when inexperienced hikers select this place for a holiday.

None of the rescue party had ever been in Copal Canyon, but Bernhard knew what to expect—a steep twisting granite-walled gorge where slick-rock waterfalls would require either roping or exhausting and dangerous detours. It was perhaps 10 or 12 miles to the floor of the desert with a drop of 6000 feet. The tracks of the lost men could be seen where they had slid down the talus slope at the head of the canyon. The route called for skilled mountaineering.

"I'll go down," said Bernhard, "but not alone. Give me one good man."

The vaqueros protested. "*Muy pel-legro*," one of them muttered. Andy Meling spoke to them briefly in Spanish, and then tossed them a coin and they began flipping it. Marcario, the youngest of the group, was the loser.

Bernhard took a 50-foot rope from the gear, two kapok sleeping bags, and what food could be spared from the meager supply—a can of soup and four potatoes. Also two quart canteens.

Before parting Bernhard asked that a helicopter be sent to the desert below

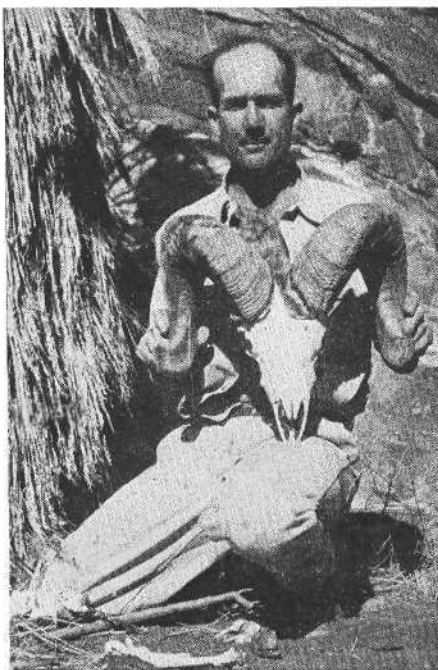
to pick them up. "We'll never make it back up that canyon," he told them.

At first, he and the Mexican made good progress, then the canyon narrowed to a slick-rock slot, and the little stream disappeared over the top of a ledge—a waterfall impossible to descend.

By using the rope it appeared possible to climb 200 feet up the canyon wall and detour the waterfall. Then followed hours of treacherous rock work, ascending with only finger-tip holds, and rappelling down vertical pitches that could not be scaled otherwise. Marcario had never been on a climbing rope, but spurred by his companion's instruction and encouragement he faced it like a veteran.

Finally they arrived in a granite crevasse 700 feet below the top of the waterfall. The canyon ahead looked good. "We'll be out in two hours," Bernhard assured his companion. "Better keep yelling." Their shouts bounced back off the granite walls, but a faint cry reached their ears. Marcario shouted again, and cupped his ear. Again the faint cry. It seemed to come from down canyon.

As they hurried ahead they continued to shout. Again they were certain they heard a reply. They continued down the gorge scanning the canyon walls on both sides. Finally Bernhard shouted, "Where are you? Make a



*Edward Bernhard of Coronado, California, Sierra Club mountaineer whose skill and stamina led to the rescue of three inexperienced hikers in the San Pedro Martyrs.*

move so we can see you." Six hundred feet up the steep wall a hand appeared feebly waving a white rag. The wall was too steep for climbing without

hardware. But downstream there was a break where it seemed feasible to climb out.

Filling the two canteens Bernhard instructed Marcario to wait for him until the next morning; then if they had not been able to communicate with each other, to continue out of the canyon and get help. They had become aware of planes and a helicopter flying overhead.

Four hours later, after considerable 4th class climbing (which the book said should not be done without a belay) he found 16-year-old Stephen Courtney lying prone on a ledge that could be reached only from above. An empty canteen and a knife were beside him. His lips were swollen, his eyes sunken and his fatigue suit with the insignia of his school in rags.

At first he seemed apathetic when Bernhard raised his head and held the canteen to his lips. But soon he revived, and had to be restrained from gulping too much water. After he had eaten the can of soup he brightened and began to talk.

"... no food since Sunday ... McBean and I split a can of chili ... what day is it? ... I heard you a long way up the canyon ... afraid you wouldn't hear me ... sometimes I blacked out ... we went wrong didn't we ... leaving the stream ... did the mule get back? I wanted to follow it, but I had never been camping before and was over-ruled."

"What did they do, leave you here to die?" asked Bernhard.

"Oh, no! I couldn't keep up, and then I got sick ... you mustn't say that ... Mr. Downs is experienced. How are you going to get me out?"

It was 5:00 p.m.—and there was nowhere to go but up. Bernhard tied the rope around the boy's waist, and then climbed ahead and then pulled the weakened youngster after him. Foot by foot they made their way up 400 feet. Then it became dark and they hovered around a small campfire to keep warm through the night.

When daylight came they worked down the steep walls to the creek and found Marcario roasting the four potatoes. The remaining two miles to the mouth of the canyon were easy. A helicopter was waiting for them there.

After they had separated, McBean had found his way out of the canyon and was the first to be rescued by the helicopter.

Downs, who had left the boys Sunday to go for help had gotten out of the canyon and turned north across the desert. Andy Meling and his Mexicans followed his tracks and caught up with him the next day at the mouth of a canyon three miles away. He had survived by eating cactus.

## Cash for Vacation Photos ...

The Desert Southwest is not all sand and space — and when summer comes the delightful pine country retreats are visited by thousands of vacationing Americans. If you are among the ever increasing number of folks who record these happy moments on film, you will find that it will be fun—and perhaps profitable—to enter the best of these pictures in Desert Magazine's Picture of the Month contest.

**Entries for the July contest must be sent to the Desert Magazine office, Palm Desert, California, and postmarked not later than July 18. Winning prints will appear in the September issue. Pictures which arrive too late for one contest are held over for the next month. First prize is \$10; second prize \$5. For non-winning pictures accepted for publication \$3 each will be paid.**

### HERE ARE THE RULES

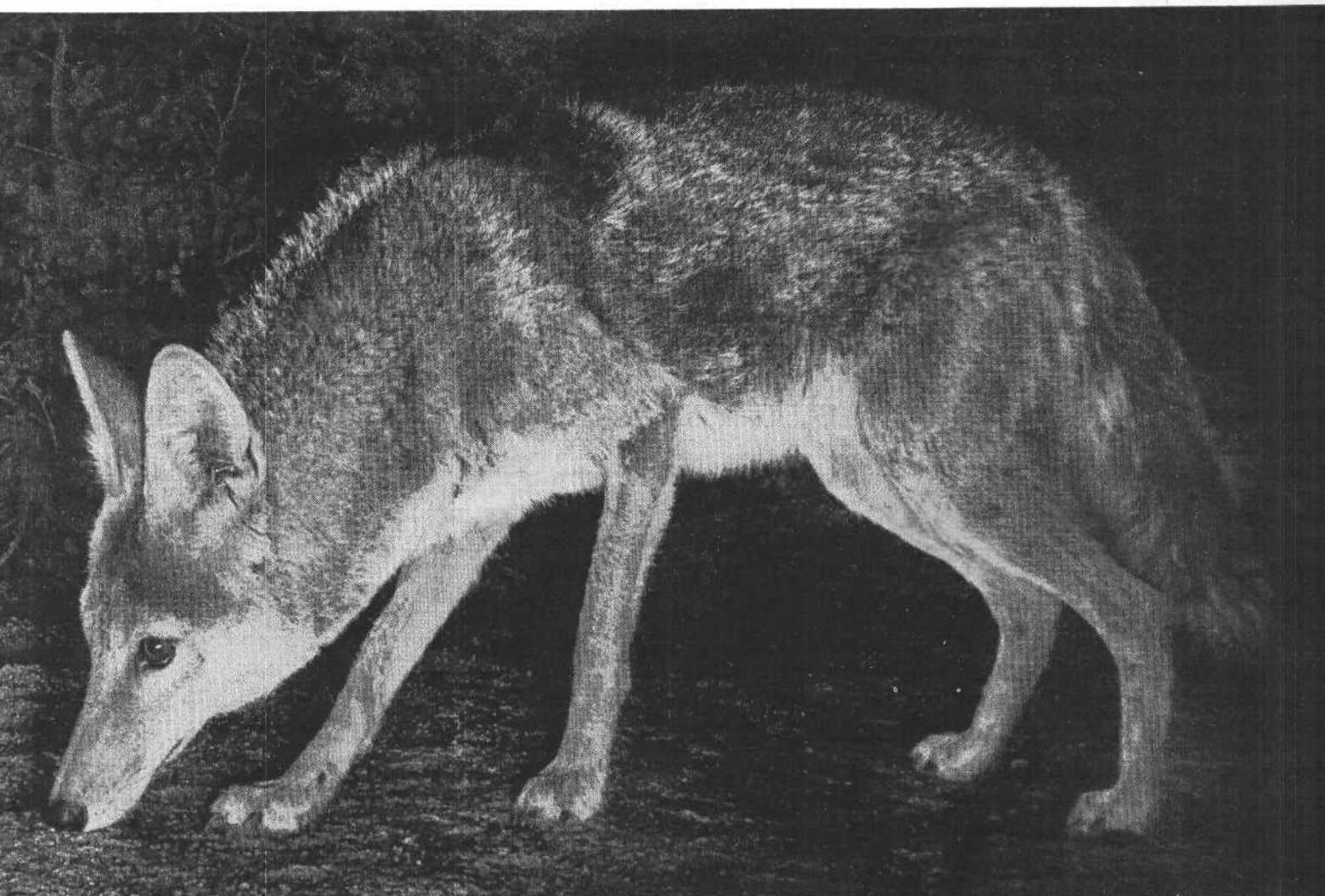
- 1—Prints must be black and white, 5x7 or larger, on glossy paper.
- 2—Each photograph submitted should be fully labeled as to subject, time and place. Also technical data: camera, shutter speed, hour of day, etc.
- 3—PRINTS WILL BE RETURNED WHEN RETURN POSTAGE IS ENCLOSED.
- 4—Entries must be in the Desert Magazine office by the 20th of the contest month.
- 5—Contests are open to both amateur and professional photographers. Desert Magazine requires first publication rights only of prize winning pictures.
- 6—Time and place of photograph are immaterial, except that it must be from the desert Southwest.
- 7—Judges will be selected from Desert's editorial staff, and awards will be made immediately after the close of the contest each month.

Address All Entries to Photo Editor

*The Desert Magazine*

PALM DESERT, CALIFORNIA





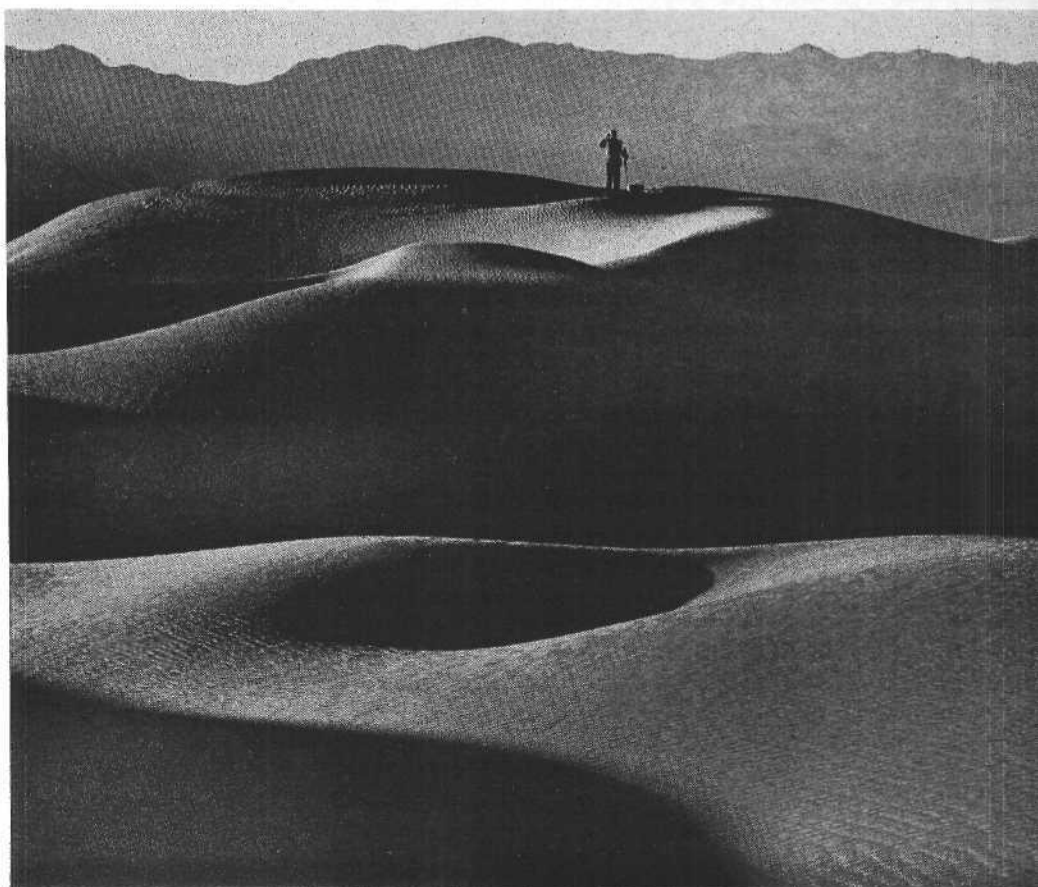
### **Coyote . . .**

While camping in Joshua Tree National Monument last July, Bob Leatherman of San Bernardino made this fine camera portrait of an early morning camp visitor. The coyote photo is this month's first prize winner. Leatherman took the picture with a 2¼ x 3¼ Crown Graphic camera with Ektar lens on Super Panchro-Press type B film; f. 16 at 1/200 seconds; No. 5 flash bulb.

## **PICTURES OF THE MONTH**

### **Sand Dune . . .**

Shifting sand has long been one of man's favorite photographic subjects and J. Haines' second prize winner explains why. The photographer, a resident of Los Angeles, used a 4x5 camera with Ektar lens.



# *Their Odor is Only a Weapon for Defense . . .*

By EDMUND C. JAEGER, D.Sc.  
Curator of Plants  
Riverside Municipal Museum  
Drawings by Morris VanDame

Nature, in her wise way, has given the skunk a very convincing defense — along with a revealing black and white coat which its would-be enemies can easily spot and therefore avoid. Here are Dr. Jaeger's personal observations on the ways of this gentle animal.

**M**ANY YEARS ago I lived on the desert's edge in a small frame built-by-myself shanty. Great rocky canyon-dissected brush-covered mountain slopes rose beside and behind me, and below flowed a merry streamlet that had its origin far back in one of the precipitous gorges. The whole environment encouraged the presence of wildlife, ranging in variety from tiny strange-looking insects and land snails to reptiles, birds and mammals.

It was not long after I set up house-keeping that many of these wilderness children occasionally came in to share my not-too-commodious quarters. A roadrunner sometimes walked into the open door and rested on the sunlit floor; pack rats lived under the house and with white footed mice came up through the knotholes and ran across the floor at night. Another frequent after-dark visitor was a nimble-bodied spotted skunk whose small head and

very narrow body made it possible for it to come in through a large knothole in a side-wall pine board, or through a very small open space beneath the closet roof. All these animal neighbors were welcome and often amusing contributors to my knowledge of animal mentality, play and feeding habits.

Because the dainty little skunk was always so full of inquisitive kitten-like play and so much given to new and prankish mischief, I soon regarded her as the most beloved and interesting of all my small wild pets. She rewarded my confidence in her innocence and well-meaning by a very exemplary odorless behavior.

This skunk's den was under a rock in a nearby clay embankment and there, undisturbed, she spent the daylight hours. Generally at dusk, but sometimes even several hours after, she ventured forth on her nocturnal quest for food. When she came into the house the dim light from my small kerosene

lamp enabled me to advantageously watch her.

Susie, as I called her, caught mice much like a cat does, by springing forward and grasping them between her always nimble forepaws. Unlike a cat, however, she never played with her prey, but ate it at once. She kept the mouse population at a minimum. It was only because new mice kept moving in on me that I had any of these soft-furred rodents at all.

Spiders and moths were gobbled up and eaten so quickly that I could scarcely follow her actions. Of my foods she above all adored bacon and her face and paws were shiny with grease after she grasped and chewed the bacon bits I placed on a special high shelf for her.

When strangers came into the house for an evening's visit she sometimes manifested her displeasure and suspicion of new faces by rapidly tapping one of her forepaws on the wooden floor and making a chittering noise with her teeth. Once when a neighbor approached too closely she gave this evidence of her displeasure, then suddenly, to my great consternation and fright, she prepared for full defense. The body was bent into the form of a U with both head and hind end directed toward us; the tail, always so beautifully plume-like, was held fully aloft.

For an anxious split second a sudden fear seized me, that of having ourselves, the house and everything in it suddenly deluged with the noxious penetrating suffocating odor of skunk effluvia, shot at us through the special anal papillae. Just why, at that critical moment, she desisted I shall never know. Had there been any sudden movement on the part of either of us just then I am certain we would have been sorry indeed.

She intermittently played for hours with a long empty salmon can placed



*Striped Skunk*





outside, rolling it back and forth, no doubt enjoying each wispy scent of fishy odor that came from its depths. One I threw out at dusk was found 200 yards away next morning, no doubt rolled all that distance as she investigated and played with it during the night.

One night early in May I began to hear faint squeaky bird-like calls from her den opening and I decided there were skunk kittens inside. It wasn't many days afterward that I was rewarded on a moonlit night by the sight of four quarter-sized replicas of their white-spotted mother. They had come out of the den to frolic with her on a nearby grass tussock, and later to go forth hunting spiders and insects at which I found they were early adept. After that I frequently saw the gay little family party. I do not know if it was a sign of caution or otherwise but only once did the mother skunk bring a youngster inside my shanty, and then only for the briefest stay.

Just below me some 500 feet away an old short-statured whiskered prospector came to camp on the sand flats for the winter and spring season. I could not help but like the jovial old fellow but I found he had one occupation which I did not like, the trapping of wild animals—coyotes, foxes, wildcats and skunks. I was always fearful that some day he would trap one of the animals of which I was so fond and which had rewarded my kindness by frequent appearances about my dooryard. All went along rather well until late in February when suddenly I missed the evening visits of little Susie. I suspected that she'd been snared in one of Joe's traps, but, of

course, there was always the possibility that my pet spotted skunk had been caught by the big horned owl which nightly sent forth his voluminous "who-whoos" from the rocky eminence on the big mountain behind my house. Horned owls do just such things, especially when they have young in the nest.

The different subspecies of the small spotted skunk (*Spilogale*) are widespread over North America from Puget Sound south to Yucatan and from the Pacific to the eastern and southern Atlantic coasts. It is most numerous in the western states, especially in the arid Southwest. The desert-inhabiting species seem almost wholly confined to rocky areas, especially along mountain borders. The sand and brush-covered clay flats seem completely shunned by them. They are very adept and agile climbers and delight in clambering over rough surfaces and making their way on journeys of discovery among rocks of giant proportions.

While on their perambulations occasionally they come suddenly upon situations of surprise that cause them to discharge their fated fluid. The odor lasts for many days but is never as lingering as that of the larger skunks.

The spotted skunk is the smallest of all our skunks, about a third as large as a full-grown cat. Its plummy white-tipped tail and long hair make the animal appear larger than it really is. The skull is depressed in comparison to the high-arched cranium of the cat-sized, more heavily-built striped skunk. There is always a white spot on the forehead, but the tail may or may not have a white tip.

Striped skunks (*Mephitis mephitis*),

quite plentiful in wooded areas of many parts of the United States and Canada, are confined in desert regions almost wholly to the brush and tree-lined borders of the desert's living streams such as the Colorado River or the Rio Grande. The little spotted skunks seem able to get along without water, but not these larger fellows who must always have ready access to it. They are pre-eminently insect hunters and hunt in the leaf mold and decaying logs which are found along stream bottoms.

The female striped skunk is able to nurse up to eight or nine kittens. One of my most pleasant memories is that of observing a mother striped skunk out on a moonlit night in a mesquite and cottonwood thicket near Needles on the Colorado River, scratching among decaying leaves at the side and beneath a rotting cottonwood log as she searched for beetles and larvae for her five agile and much interested youngsters.

Occupying the often hot arid country of southern Arizona and New Mexico and parts of Chihuahua and Durango in Mexico, is the long-tailed or hooded skunk. It is a small slender creature compared to its striped skunk cousin. The tail is bushier too, and much longer. The long white hairs of the neck and back of the head form the cape or hood which gives this gentle animal its common name. Sometimes the top of its tail, entire back and a narrow stripe along each side are white.

Occasionally I have seen these handsome and active creatures shuffling along a trail, leaving behind the marks of their long flat-footed feet. They seem to prefer the late evening and early

night hours for hunting along the bottoms of brushy washes and cliff bases of rocky canyons for rodents, small birds and insects.

In parts of southern Colorado, southern Arizona and Texas, the large Chihuahuan Desert of Mexico and southward to Chile and Patagonia is found the heavily built but less active white-backed hog nosed skunk (*Conepatus*). I have seen them only in the warm lowland valleys where their hair is coarse and the normally black areas are only a brownish black. I am told that hog nosed skunks living at higher elevations have pelts with much finer and longer hair. Just why more mild temperatures, greater altitude and higher humidity should produce this effect is not definitely known. And it is not only among skunks that this change occurs, but also among other mammals. A somewhat comparable alteration takes place among certain grasses. The wide spread tobosa or galleta grass which in the hottest desert basins grows stems so coarse and rigid that cattlemen consider it almost worthless as forage, is fine stemmed and leafy at higher elevations.

This large slow-moving shy and rather slow-witted skunk with a somewhat pig-like head seems especially adapted as a hunter of ground dwelling insects, especially beetles and their larvae. Its shoulders are stocky, the claws are long and heavy and its bare flexible snout enables it to locate and root out its chosen insect food from the loose soil and leaf mold. In prickly pear country the cactus fruits as well as small rodents and birds are eaten.

The skull of *Conepatus* has many special characteristics. The teeth are different both in shape and number from other skunks, and the nostrils open forward and downward instead of on the sides of the muzzle. The ears are extremely small and the tail less plummy and shorter than in other skunks. There may be two very dark

bands or these may be completely united. The tail is generally pure white and hence especially conspicuous when waved about on moonlit nights.

The peculiar combination of black and white of skunks has been regarded by naturalists as a warning coloration. Such colors, said Dr. E. B. Poulton, assist in the education of enemies, enabling them to easily learn and remember the animals to be avoided.

Having had one real experience with the nauseous artillery of a skunk neither dog nor man would be other than foolish to menacingly approach or attack one.

Because of their food habits skunks are among our most valuable mammals and should be protected. If for any reason they annoy, they can be trapped in box traps which do not injure them and transported to parts distant enough so they will not return.

## SPRING RAINS IMPROVE DESERT RIVER RUNOFF FORECASTS

Above average Spring rainfall has considerably improved Southwest river runoff forecasts.

Only over portions of the Great Salt Lake Basin in Nevada and California's Mojave Desert were the water-flow predictions reduced over the previous month's estimates.

A water-supply forecast near 60 percent of the 1938-52 average was made for the upper Humboldt Basin and near 82 percent of average for Martin Creek near Paradise Valley, Nevada. Other forecasts: Truckee, Carson and Walker rivers, 65 to 75 percent of average; Owens River (which reported above normal rainfall in April) 75 percent of average; Mojave River, less than half of average.

Near or above normal streamflow is expected for all streams in the Great Salt Lake Basin except some of the smaller creeks near Salt Lake City.

The Sevier and Beaver basins had heavy April precipitation, considerably improving a critical situation there. Below average streamflow is still forecast for the Sevier basin while near average streamflow is now expected for the Beaver River.

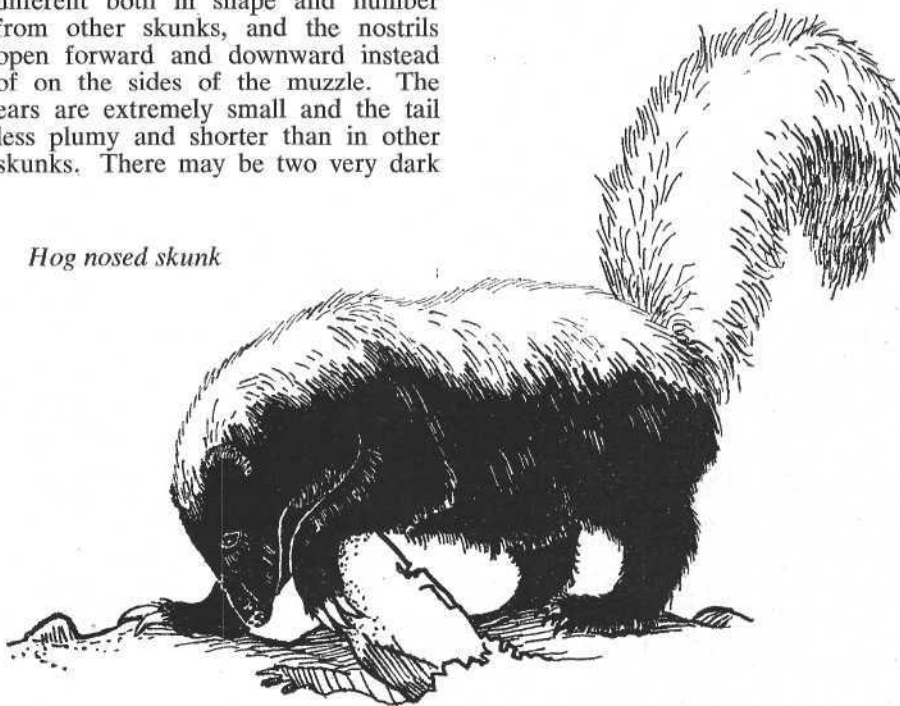
Favorable precipitation has improved the outlook for the Colorado River Basin. Slightly above normal runoff is in prospect for the drainage area above Cameo, Colorado, and for the Taylor Basin. About 10 percent less than average streamflow is expected for the main Dolores and Uncompahgre rivers. The runoff of the Colorado River near Cisco, Utah, is forecast at 116 percent of average.

Water-supply forecasts for the Yampa and White Basins in Colorado are for 110 to 115 percent of average except for the Little Snake River where near 90 percent is expected. For the upper Green River in Wyoming forecasts of runoff vary from 75 percent of average for some of the smaller streams to near 90 percent for the Green River near Linwood, Utah. Near average runoff is in prospect for the extreme upper Duchesne and Price Rivers, but below average streamflow is indicated for the remainder of the Utah tributaries. Streamflow for the Green River near Green River, Utah, is forecast to be 109 percent of average.

The water-supply outlook for the San Juan River Basin is for slightly above average streamflow for the entire basin.

Streamflow of the Rio Grande's drainage area in Colorado is forecast to be near or slightly above the 1938-52 average. Near average runoff is also expected for the Rio Chama in New Mexico. Below average streamflow is in prospect for the tributaries draining the western slopes of the Sangre de Cristo range in New Mexico. The runoff of the Rio Grande at Otowi Bridge, New Mexico, is expected to be 108 percent of the 15-year average.

Hog nosed skunk





## LIFE ON THE DESERT

# The Treasure We Value Most

The personal experiences—the sharing of happiness—are the real treasures of the desert. Here is the delightful story of a man and his wife who brought two lonely desert dwellers together and received for their efforts a warm unending friendship—and two gold mines.

By THOMAS W. MAY

**T**HE PROSPECTOR who we had just met, made us welcome in her small cabin on the four or five claims she was working in the Rich Hill country of Arizona. We'll call her Anna, but that isn't her true name.

She was wearing a homemade blue denim dress with a half-gallon pocket on the right side. Pulled tightly over her stringy rust-colored hair was a weather-worn felt hat. Anna's leathery brown face, wrinkled by the burning desert sun, revealed every one of her 54 years of age.

And never think for one minute that Anna didn't know how to take care of herself out there in the middle of nowhere, for she appeared unafraid of man or beast. But, like most folks we have met in the remote corners of the desert, she possessed a big heart of gold.

My wife, Gussie, and I accepted Anna's invitation and entered the small box-shaped cabin with its sheet-iron roof. The kitchen doubled as a store room. Behind the crude table was a three burner kerosene stove. Nearby was an oil lamp with a smoky chimney and nailed to the walls were rough plank shelving and screen-covered apple boxes in which her food supplies were stored.

Between the parted burlap drapes which separated the kitchen and Anna's bedroom I saw a topsy-turvy bed and an old iron strapped trunk standing open. In a corner was an old-fashioned dresser with a cloudy mirror, its top crowded with innumerable objects.

Anna kept up a steady chatter—mostly questions—in an accent whose origin I could not discern. As she and Gussie prepared the evening meal and even while we ate, the conversation never lagged. We spoke on every subject imaginable, from mineralogy to health and life on the desert to love and family life.



*The author at the entrance to one of the gold mines he and his wife received from Anna and Bill.*

"Doesn't it get lonesome out here all by yourself, Anna?" Gussie asked while we were on the latter subject.

"Sometimes," she answered. "But, I have plenty to do to keep the lonely times from lingering."

A grin appeared on Gussie's face. "I would think you would run across some nice prospector who hasn't been as lucky as you, and who would make you a good helper on your claims—and a good companion," she said.

Anna exploded! "You don't know those old filthy desert rats like I do!" she cried. "I haven't seen a one that appeared to've ever had a bath, other than the one he got when he came into this world, and never expects to take another unless an undertaker gets him before the buzzards or coyotes do!" She slapped the table top so hard the dishes bounced. "Now, I hope you don't think I would marry up with one

of those varmints and put up with that billygoat scent!" she said in a shrill voice.

Gussie quieted her down with a gesture. "No, no, Anna," she said soothingly, "not all of them are that way. We know a middle aged prospector who's not that dirty, don't we Tom?"

I don't remember having answered that question.

And then Anna's mouth broadened into a wide smile and she said, "Well, when the right man comes along—I might take on a partner."

We spread our bedrolls on Anna's front yard that night, and after breakfast the next morning we said our farewells. Before we left, Anna handed me her bank book with some paper money folded in it and asked me to make the deposit for her.

We arrived in Wickenburg before

the bank opened, so we sat on one of the benches across the street.

"Look who is coming down the street," said Gussie after we had been there but a moment. It was Bill, the prospector from over Vulture Mountain way who Gussie had referred to the night before.

He was a short powerfully-built

Irishman, a widower of 65 who looked no older than 50. He always carried a smile on his face, and a better—or cleaner—man never lived.

He sat down on the bench and we chatted for a few minutes. Of course Gussie made it a point to bring Anna into the conversational spotlight, boosting her as a good cook and jestingly

recommending her as a prospective companion. Bill showed some interest, but turned the whole matter into a joke. Then the bank opened its doors and our visit with Bill ended.

Several months later we received a letter at our Wilmington, California, home. It was from Anna. She and Bill had gotten married! She invited us to visit them at our earliest convenience.

For the next few days I wracked my brain trying to think of an appropriate wedding gift. Gussie made a bad joke by recommending we buy them a wheelbarrow and shovel, along with a couple of sticks of dynamite. The reality of this marriage and the happiness it would bring to Anna and Bill—and to us—was not yet fully realized.

More months passed before we were able to visit them. As we rounded the familiar clump of mesquites before Anna's cabin we wondered if we had the right place. The cabin was painted a dull red, trimmed in white. A room had been added and there was a new front door and screens on the windows.

Once inside we received even more startling surprises. The living room was lavishly furnished. In a corner was a television set, in Anna's room a maple bedroom suite and the kitchen was one any woman would be proud of. There was a bathroom, too, with hot and cold running water.

Bill proudly showed us around their home and then Anna, who had been fumbling around with some papers in the bedroom, joined us in the living room. In her broken English she said: "I've been told you two old desert tramps have been prowling these deserts looking for gold for the past 10 year and ain't found none yet. Me and Bill aims to put a stop to that right now. We're going to give you a gold mine — and a pretty good one, too." She handed me a packet of bulky legal papers.

"Give them that one of mine over in the Big Canyon, too," said Bill to Anna.

Gussie and I were speechless.

She and I have long been aware that looking for gold and treasure on the desert was only an excuse to wander about, admiring the beauty of the scorched earth as the Maker had left it. Nor has the power of the desert's magnetic charm lessened its tension on us, for we keep going back, and we have been back to visit Bill and Anna since. But our return visit was to enjoy the companionship of our good friends—not to work those gold mines. For, in truth we have never recorded our title to those mines—for the wealth we treasure most is the friendship of Bill and Anna.

## Desert Quiz

*Desert Magazine's* monthly Quiz is both a test of your knowledge, and a school for expanding your acquaintance with one of the most interesting regions in USA. The questions range through geography, history, wildlife, mineralogy, literature, Indians and the lore of the desert. All the answers have appeared in past issues of the magazine. A score of 10 is very good for a tenderfoot. For more advanced students of the desert, 12 to 14 is good, 15 to 17 is excellent, 18 or over is superior. The answers are on page 34.

- 1—The staple meat in the diet of the Navajo Indians is—Beef \_\_\_\_\_. Mutton \_\_\_\_\_. Pork \_\_\_\_\_. Wild game \_\_\_\_\_.
- 2—The fleetest animal now found in Nevada is—Antelope \_\_\_\_\_. Jack-rabbit \_\_\_\_\_. Mule deer \_\_\_\_\_. Bighorn sheep \_\_\_\_\_.
- 3—The historic feud between the Clanton Gang and the Earps was staged at—Prescott \_\_\_\_\_. Bisbee \_\_\_\_\_. Tombstone \_\_\_\_\_. Ehrenberg \_\_\_\_\_.
- 4—Montezuma Castle National Monument is located in—Arizona \_\_\_\_\_. New Mexico \_\_\_\_\_. Utah \_\_\_\_\_. Mexico \_\_\_\_\_.
- 5—The book *What Kinda Cactus Izzat?* was written by—Edmund C. Jaeger \_\_\_\_\_. Mary Beal \_\_\_\_\_. Oren Arnold \_\_\_\_\_. Reg Manning \_\_\_\_\_.
- 6—A lecture given by M. R. Harrington probably would be on the subject of—Archeology \_\_\_\_\_. Placer mining \_\_\_\_\_. Dry land farming \_\_\_\_\_. Rock collecting \_\_\_\_\_.
- 7—The Gadsden territory was purchased from—Spain \_\_\_\_\_. Mexico \_\_\_\_\_. France \_\_\_\_\_. The Indians \_\_\_\_\_.
- 8—The botanical name of the plant known as Squaw or Mormon tea should be spelled — Aphedra \_\_\_\_\_. Effedra \_\_\_\_\_. Ephedra \_\_\_\_\_. Ephedria \_\_\_\_\_.
- 9—The mineral commonly known as "volcanic" glass generally is—Chalcedony \_\_\_\_\_. Mica \_\_\_\_\_. Chert \_\_\_\_\_. Obsidian \_\_\_\_\_.
- 10—The name John D. Lee is associated with—the Lincoln County War in New Mexico \_\_\_\_\_. Kidnapping of the Oatman sisters \_\_\_\_\_. Mountain Meadows massacre \_\_\_\_\_. Capture of Geronimo \_\_\_\_\_.
- 11—"Crossing of the Fathers" is a historic landmark along the Colorado River identified with—The trek of Father Escalante \_\_\_\_\_. Mormon colonization \_\_\_\_\_. The march of Coronado \_\_\_\_\_. Gold rush to California \_\_\_\_\_.
- 12—One of the following dams is not in the Colorado River—Hoover dam \_\_\_\_\_. Davis dam \_\_\_\_\_. Elephant Butte dam \_\_\_\_\_. Parker dam \_\_\_\_\_.
- 13—The Indians who come to Harry Goulding's trading post are mostly—Navajo \_\_\_\_\_. Apache \_\_\_\_\_. Yuma \_\_\_\_\_. Paiute \_\_\_\_\_.
- 14—The specific name for Indian symbols incised in stone is—Pictographs \_\_\_\_\_. Pictograms \_\_\_\_\_. Petroglyphs \_\_\_\_\_. Hieroglyphics \_\_\_\_\_.
- 15—Entering Arizona's Oak Creek Canyon from the south you would pass through the town of — Holbrook \_\_\_\_\_. Show Low \_\_\_\_\_. Miami \_\_\_\_\_. Sedona \_\_\_\_\_.
- 16—The blossom of Encelia or Incense Bush is—White \_\_\_\_\_. Yellow \_\_\_\_\_. Red \_\_\_\_\_. Blue \_\_\_\_\_.
- 17—Indian arrowheads were never made of one of the following minerals because of its softness — Obsidian \_\_\_\_\_. Chalcedony \_\_\_\_\_. Calcite \_\_\_\_\_. Chert \_\_\_\_\_.
- 18—The month you would most likely find Smoke tree in blossom is—June \_\_\_\_\_. September \_\_\_\_\_. February \_\_\_\_\_. April \_\_\_\_\_.
- 19—The transcontinental highway which connects Tucson with Yuma, Arizona is—U.S. 80 \_\_\_\_\_. U.S. 50 \_\_\_\_\_. U.S. 60 \_\_\_\_\_. U.S. 66 \_\_\_\_\_.
- 20—The capital of Nevada is — Reno \_\_\_\_\_. Las Vegas \_\_\_\_\_. Carson City \_\_\_\_\_. Elko \_\_\_\_\_.



# Here and There on the Desert . . .

## ARIZONA

### Indians Name Park Commission . . .

WINDOW ROCK—Chairman Paul Jones of the Navajo Tribal Council has announced the appointment of the following members to the Tribal Park Commission which is empowered by a resolution passed by the Council in February to recommend recreational and historical areas within the reservation to be established as Navajo Parks and Monuments: Howard W. Gorman of Canada, chairman; Edward Manson of Coppermine, Frank Bradley, Sr., of Kayenta, Howard Sorrell of Lukachukai and Ned Hatathley of Tuba City.

### Two Tribes Seek Aid . . .

PHOENIX—Royal Marks, Phoenix attorney and general counsel for the Hualapai and San Carlos Apache In-

dians, said these two tribes will seek a "Point Four" program of economic aid from the federal government. The Hualapai tribe is asking congress for an \$800,000 appropriation for a range water development program to enable them to drill needed wells and install catchment basins on their 900,000-acre reservation. The San Carlos Apache tribe still is in the process of drafting its program, the attorney said. —Phoenix Gazette

### Park Officials Inspect Fort . . .

BOWIE—Continued interest of the National Park Service in Fort Bowie was evidenced recently when a party of officials inspected this site at the request of local citizens who ask that it be preserved as a national monument. —Tombstone Epitaph

### Land Script Deadline August 4 . . .

WASHINGTON, D. C.—The Federal Government announced an August 4 deadline for the recording of script, the documents acquired under law entitling the holders to claim public lands. None has been issued for 50 years. The government said scrip covering 67,500,000 acres was issued and there is more outstanding than has been recorded. —Phoenix Gazette

### Indian Tax Opinion Near . . .

PHOENIX — An opinion holding that Arizona's reservation Indians are subject to the state's income tax regulations was scheduled to be issued by the attorney general's office. The opinion is only advisory, however, and is yet to be determined by the courts. The opinion will hold that individual income of Indians as well as tribal uranium and oil exploration revenue will be taxable, it was further stated. —Phoenix Gazette

## LETTERS

### Hammer Happy Rockhounds . . .

Big Pine, California

Desert:

I would like to comment on "Hammer Happy Rockhounds."

It has been my experience that soon after a new collecting field is discovered, the ground is covered with shattered and abandoned specimens.

While helping a friend at his quartz crystal mine in this area, we located and removed many broken pieces of crystals, clusters, etc. Many of these specimens were of great beauty and value, some weighing up to 300 pounds. Actually, the claims are posted, but if a rockhound wanders onto the property and takes some of these specimens and then goes about his business, there would be no hard feelings on the part of the owner.

Recently, some one did enter the property. He knocked down the location notice monument; shattered the glass-topped box in which the notice was displayed; and then broke crystals off of the clusters we had taken out of the mine—despite the fact that there were no less than 300 pounds of good specimens lying around loose, and all of much better quality than those broken off the clusters.

This is not an isolated case nor are individuals to blame in every instance. A mineral society recently came into this area and blasted for crystals with

dynamite. Of course the specimens were shattered to worthless bits.

Rockhounds must police their own ranks or suffer the consequences. I suggest that they make every effort to report vandalism to the proper authorities. Unfortunately, rockhound clubs and individuals are acquiring bad reputations due to the acts of a few—and unless those few are controlled, more and more fields will be closed to us.

F. B. TERRY

### Save Rainbow Bridge . . .

Silver City, New Mexico

Desert:

I have grown up with Rainbow Bridge on the Colorado River and would like to add my comments toward conserving this wonderful landmark.

As the Navajos know, the white man's mechanical devices sometimes are destructive, and I would not want to see a bulkhead dam below the Bridge. The scars of construction would deface the canyon.

AZEL LOCKNEY PRUITT

### Doodle Bugs Do Work . . .

Los Angeles, California

Desert:

With all respect to Asa Russell's efforts and experience with doodle bug gold locators (*Desert*, June '57), I can not agree with him.

I have a Distometre which can register gold at 20 miles. This I proved several years ago while in a canyon draining into Baja California's Laguna Salada. I checked this canyon from the main highway and we found gold and water in it.

Once a Long Beach doctor wanted

proof that my instrument could find gold. He set up a test in his yard in which he supposedly buried \$50 in gold and dug several other holes in his yard to confuse me. I could find no gold in his yard. He had buried a silver casket filled with silver coins. There was no buried gold.

The only way to properly test an instrument is in the field. On the Mojave Desert two friends asked me to locate gold with my depthometre. I named a spot and said the gold was five feet below the surface. At four feet we found decomposed granite. At five feet we were throwing out gold. The samples assayed 21 cents gold and 11 cents silver!

That's the way to check an engineer! In the field.

M. A. BERNHARD

### Sheep Destroy Wildflowers . . .

Boron, California

Desert:

During the latter part of April we had a solid carpet of wildflowers along the highways in this area—and then a carload of sheep was unloaded at Kramer Junction. Two weeks later hardly a wildflower remained.

A person can be arrested and fined for picking a bouquet—which wouldn't make a dent in the flower patches—yet sheepmen can come in with their flocks and level an entire year's growth along with the seed for future years, and nothing is done about it.

A. C. PRITCHARD

Dear Mr. Pritchard — Riverside County, California, has solved the problem by establishing Wildflower Reserves wherein it is illegal to pasture sheep.—R.H.

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**BACK ISSUES**, 1949-52; Desert Magazine, Rocks and Minerals, and The Mineralogist. Write for listings. VanNostrand, 4858 Sepulveda Blvd., Sherman Oaks, Cal.

**COMPLETE FILE** of Desert Magazine. Good condition. \$60. Also Arizona Highways from March, 1940. \$25. Paul E. Pierson, 68 E. Midway, Phoenix, Ariz.

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## MAPS

**SECTIONIZED COUNTY** maps — San Bernardino \$1.50; Riverside \$1; Imperial, small \$1, large \$2; San Diego 50c; Inyo, western half \$1.25, eastern half, \$1.25; Kern \$1.25; other California counties \$1.25 each. Nevada counties \$1 each. Topographic maps of all mapped western areas. Westwide Maps Co., 114 W. Third St., Los Angeles, California.

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**ILLNESS FORCES** sale of well established rock shop and three bedroom home. San Bernardino area. Sander, 20279 Valley, Rialto, California.

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## MISCELLANEOUS

**GHOST TOWN ITEMS:** Sun-colored glass, amethyst to royal purple; ghost railroads materials, tickets; limited odd items from camps of the '60s. Write your interest—Box 64-D, Smith, Nevada.

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**HISTORICAL CALIFORNIA** logging wagon for sale; solid wheels which need repairs. Western atmosphere for rancho, cabin or business—see, make offer. L. A. Weatherwax, 13029 Glenoaks Blvd., San Fernando, California.

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**ADAMS GOLD**—want partner. Landmarks match. August 1. A. M. Anderson, 16926 South Howard, Gardena, California.

## Town Developers Sought . . .

**PAGE**—Plans for the establishment of the new community of Page at the Glen Canyon damsite on the Colorado River call for maximum participation by private capital, the Department of Interior said. It will be general policy to accomplish only those tasks beyond the capacity of local resources, public and private, to perform, the government added. Those interested in starting a business at Page should write to



"Project Construction Engineers Office, Kanab, Utah." Bid opening was held for grading of an area and construction of foundations for 50 demountable houses at Page. Martin-Rice Construction Co. of Las Vegas, Nevada, was low bidder at \$21,961. — *Southern Utah News*

#### Drouth Decreasing . . .

WASHINGTON, D. C.—The Geological Survey reports a recent decrease in the persistent drouth in the Midwest and Southwest. The situation from the Great Lakes to Southern California reached critical stages in some areas, but at the end of the six-month period ending March 31, showed some indication of decreasing, the report said. It was noted that drouth has been present in varying intensities for eight years or more over much of the southern mid-continent region and the Southwest.—*Phoenix Gazette*

#### State Parks Board Named . . .

PHOENIX—Arizona Governor McFarland announced the names of five men and one woman appointees to the state's first parks board. Those named were Max Connolly of Tempe, a former legislator and now connected with a Phoenix printing firm; Charles J. Reitz, superintendent for the past four years of Yuma's Recreation and Parks Department; Mrs. Frances Weedon, Phoenix, president of the state Democratic Women's Clubs in 1955-56; Ricki Rarick, Tucson newspaper executive; Ezekiel B. Taylor, Clarkdale, a Yavapai cattleman; and A. V. Mercer, pioneer Pinal County cattleman whose home is near Mammoth. Connolly was elected chairman of the group.—*Arizona News*

#### CALIFORNIA

##### Bristlecone District Asked . . .

BISHOP—The Inyo County board of supervisors took steps to acquire the land in the White Mountains where the bristlecone pine grows (*Desert*, June '57). The board's resolution asks for the transfer of the lands from the state to the county so that the pines, reputed to be the oldest living things on earth, can be better protected.—*Inyo Register*

##### Monument Trail Planned . . .

TWENTYNINE PALMS — Work on a 30 mile equestrian and hiking trail through Joshua Tree National Monument was scheduled to get under-

way July 1. The trail, which will be an extension of the state system under the Department of Beaches and Parks, will enter the Monument at La Contenta road near Paradise Valley. It will run south to Lower Covington Flat, along the south side of Quail Mountain, cross Juniper Flat and Lost Horse Valley, and wind past White Tanks and Belle campgrounds, leaving the Monument along Utah Trail. The state will pick up the trail from that point.—*Desert Trail*

#### Boats on River Controlled . . .

BLYTHE — An ordinance adopted by the board of supervisors makes it unlawful for any person "to operate, drive or propel any motorboat or other boat on, over, along or across any river, lake or other body of water in willful or wanton disregard for the safety of persons or property." The ordinance was designed to answer problems encountered in controlling reckless operation of boats on the Colorado River in the Blythe area.—*Palo Verde Valley Times*

#### Indians Seek Autonomy . . .

WASHINGTON, D.C. — The Department of Interior has recommended to congress that it enact four bills which would in combination bring an end to Federal trusteeship over the property and affairs of 38 small Indian reservations or rancherias in California in line with recommendations made by the Indian owners. Total area involved is about 3860 acres and the total population approximately 890 Indians.

#### Christ Park Controversy . . .

YUCCA VALLEY — Violence broke out in Desert Christ Park (*Desert*, Oct. '56) when sculptor Antone Martin knocked the concrete noses off heroic-sized Biblical figures he created there. The trouble started when Pastor Eddie Garver reportedly decided to charge admission. When Martin objected to the commercialization, a second dispute is said to have arisen over the ownership of the land and the statues. Only Judas was spared defacing "as a symbol," the artist said. At last report the rift was patched and work started on replacing the noses.—*Desert Trail*

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#### Desert Plant Remover Fined . . .

BORREGO SPRINGS — A Spring Valley man was fined \$25 and court costs for removing native desert plants from the Anza Desert State Park. Jack Welch, state park supervisor, said warnings have been issued to visitors that digging up or disturbing desert plants, minerals, rocks or any other geological features is in violation of the California Administrative Code governing preservation of natural and historical features of state parks. — *Borrego Sun*

#### Parks on River Considered . . .

BLYTHE—Seven public park and camp sites have been mapped out on the Colorado River in the Blythe area and county and state approval for their

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## NEVADA

### State Range Power Killed . . .

CARSON CITY—The Nevada Supreme Court, in an unanimous decision, ruled that Nevada's 1925 Stock Watering Act was superseded and rendered ineffective by the act of congress placing control of the public lands in the Secretary of Interior and the Bureau of Land Management. It was an opinion of vast importance to stockmen of the West and the first case of its kind to reach a court of last resort in the Western states since adoption of the Taylor Grazing Act. The court also ruled that state courts may no longer control range through enforcement of stock watering rights; that the beneficial use of water is the ultimate test; and the control of stock water and control of range are separate functions.—*Pioche Record*

### Indians Lose Hunt Decision . . .

MINDEN—Three Washoe Indians who wanted to gain for their tribe the right to hunt and fish on its own lands regardless of state game laws walked out of Douglas County district court as both victors and losers. Through a technicality, Judge Frank Gregory overruled a previous justice court conviction on charges the three possessed deer meat illegally. However, he also ruled that the state has the same right to regulate hunting and fishing on Indian lands that it does on other lands.—*Nevada State Journal*

### Stone Age Artifacts Found . . .

VIRGINIA CITY—Two European scientists unearthed three Stone Age artifacts while inspecting geological formations on the lower slopes of Mt. Davidson. The pieces found were: an obsidian dagger eight inches long; a small saucer-shaped object; and an exquisitely carved feline animal figure amulet.—*Territorial Enterprise*

### Tests Harmless, AEC Says . . .

LAS VEGAS—The Atomic Energy Commission reassured Nevadans that nuclear tests being conducted near here are rigidly controlled and all available evidence has "confirmed that fallout from Nevada has not caused illness or detectable injury to health." The AEC said precautions are taken to keep the amount of local fallout to as low levels as possible, and to measure and record the radiation exposures which might be received by persons in the area around the test site. Tentative dates

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for "greater than Hiroshima" test blasts in Nevada are June 27, July 25 and August 19. The current testing program will continue into September.

## NEW MEXICO

### Navajo Dam Again Delayed . . .

WASHINGTON, D. C. — New Mexico Senator Clinton P. Anderson reports that the Bureau of Reclamation plans to award a construction contract for Navajo Dam in San Juan County in late fiscal 1958. Preliminary work recently was begun on the base camp and it was the New Mexico congressional delegation's hope that the contract would be let this year. The Bureau originally had set a 1961 date for the start of the New Mexico storage unit — Navajo Dam — of the Upper Colorado River Storage Project. — *Aztec Independent*

### Industrial Help Asked . . .

WASHINGTON, D. C. — The Bureau of Indian Affairs has proposed Federal aid to industry in depressed areas as a means of providing employment for Indians. The Bureau said the program would be a good supplement to other plans to help the Indian better himself.—*New Mexican*

### Giant Solar Oven Planned . . .

HOLLOMAN—The world's largest solar furnace is under design by physicists at Holloman Air Development Center. It is expected to be completed early in 1959 and will be located near Cloudcroft. The new device is expected to produce temperatures as high as 8000 degrees Fahrenheit. — *New Mexican*

### Urges Aid for Indians . . .

WASHINGTON, D.C.—A spokesman for the Board of Home Missions of the Congregational Christian Churches told the Senate Indian Affairs Subcommittee that an economic aid program should start at home with the American Indians. Frank S. Ketcham declared that the average income for many Indian tribes is "far below the level needed for decent living." He said some Indian families have incomes of \$400 a year and those with more than \$1200 a year are in the minority.—*New Mexican*

## UTAH

### Flaming Gorge Bids Delayed . . .

WASHINGTON, D.C.—the Bureau of Reclamation reported that bid openings for construction of the Flaming Gorge Dam on the Green River in northern Utah have been tentatively rescheduled for fiscal 1958. At the same time, invitations to bid on highway, streets, utilities and residences for Flaming Gorge community facilities were issued by the Bureau. — *Vernal Express*



## Glen Bridge Concrete Poured . . .

KANAB—Contractors on the \$4,-130,000 Colorado River Bridge below the Glen Canyon Dam began the pouring of concrete for the substructure. When completed, the 700-foot-high bridge will be the highest single span steel arch in the nation. The bridge builders are ahead of schedule and there is a possibility that the bridge will be finished by the fall of 1958, six to eight months before the contract completion date. — *Southern Utah News*

## Archeologists Search Canyon . . .

GLEN CANYON — Archeologists from the Museum of Northern Arizona have moved into the area along the south rim of the Colorado and San Juan rivers and have begun the mapping and photographing of future archeological diggings. Also engaged in the research will be the University of Utah's anthropology department, headed by Dr. Jesse D. Jennings who believes a lost "desert culture" may have existed in the area long before the obvious Mesa Verde cliff dwellers came on the scene. In seven years it is expected that the waters behind Glen Canyon dam will cover the area. — *Southern Utah News*

## Anti-Litter Law Adopted . . .

SALT LAKE CITY—Utah's tough new anti-litter law became effective in May. It provides that anyone who throws or causes trash or burning materials to be thrown onto highways will be guilty of a misdemeanor which is punishable by a fine of up to \$299 and/or six months imprisonment. — *Vernal Express*

## Utes Divide Land, Cash . . .

FORT DUCHESNE — After three days of negotiations, nearly a million acres of disputed grazing land was divided between the Ute and Affiliate Ute (mixed-blood) Indians. The land division was one of the major steps in following out the intent of a congressional act which calls for the termination of federal control over the mixed-bloods and establishment of a development program for the remaining full-blood Indians. A total of \$735,000 was distributed among the 490 members of the mixed-bloods as part of the \$30,000,000 settlement the federal government made in behalf of the Utes in 1951.

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# MINES and MINING

## Bonanza, Utah . . .

The first pipeline ever built to transport solid materials over mountainous country has gone into operation. Running from the mines of the American Gilsonite Company at Bonanza, the \$2,000,000 pipeline extends 72 miles over the Book Cliff Mountains to the company's new refinery at Gilsonite, Colorado, near Grand Junction. This is the first privately-financed refinery in the nation to produce on a large scale conventional petroleum products from solid hydrocarbons. Gilsonite, a trade-marked name, is the mineral raw material used. It is mined from vertical seams and is coal-like in appearance. — *Vernal Express*

## White Pine County, Nevada . . .

Coppermines Co. plans to spend \$7,000,-000 in White Pine County to broaden its operations through diversification; reduce cost through equipment modernization; and participate in oil and gas programs begun in 1956. The company said it expended \$3,-690,000 developing copper properties there last year. — *Pioche Record*

## Moab, Utah . . .

Delhi-Taylor Oil Corporation announced plans to develop potash deposits in the Grand County area adjacent to Moab. The concern said the project includes the driving of a shaft on the Seven-Mile structure west of Moab, the building of a processing mill and other phases of work which would result in putting the mineral on the commercial market. Reports indicate that the company has a 41-year ore reserve at the mine based on a 1000-tons-per-day operation. — *Moab Times-Independent*

## Papago Reservation, Arizona . . .

One of the largest copper ore exploration programs in the nation is underway on the Papago Indian Reservation, a First National Bank of Arizona business development department official said. He did not identify the company, but it is known that both the American Metals Company and the Miami Copper Company have conducted extensive explorations on the reservation for a considerable time. — *Casa Grande Dispatch*

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## Salt Lake City . . .

Both lead and copper were reduced one-half cent a pound recently by custom smelters amid warnings from the west's mining industry that if the reductions continue, many mines will close down. Economists also warn that given annual continuation of cost inflation, price reduction and growing imports, the big underground copper properties of the West will be forced to close. Other operators will of necessity have to reduce work shifts. Announcement was made in Washington, D. C., that the Eagle-Picher Mining Co., principal lead-zinc producer of the tri-state district of Kansas, Missouri and Oklahoma, was closing down all operations, which apparently includes its diatomaceous earth operation near Reno.

## Henderson, Nevada . . .

American Potash and Chemical Corporation has begun production of decaborane at its pilot plant in Henderson. Decaborane is a high-energy chemical compound of boron and hydrogen being studied for possible use as a high potency "hot" fuel for jet and liquid-fuel rocket engines. Another high-energy boron fuel, known as HiCal, will be produced by the Callery Chemical Co. in a plant being built for the Navy at Muskogee, Oklahoma. HiCal is a combination of boron, carbon and hydrogen.—*Boron Enterprise*

## New York, New York . . .

The Perlite Institute of New York says perlite, a white feathery volcanic material previously used in plaster and concrete, is now being sold as a soil conditioner by over 50 manufacturers under various brand names. Perlite acts like a mechanical earthworm in the soil, keeping it porous and pliable, the institute said.—*Pioche Record*

## Santa Fe . . .

Legislation which provides that the discovery requirements for establishing a lode mining claim may be obtained by drilling, has been enacted by the New Mexico Legislature. The act states that a locator of a mining claim may, at his option in lieu of discovery shaft, tunnel or pit, drill or cause to be drilled a hole, for the same purpose. The hole must be an inch and a half or more in diameter; not less than 10 feet in depth; and in the event more than one hole is drilled, the discoverer is to designate which hole is to be considered the discovery hole. This hole should then be marked by a substantial post or other permanent marker at least 30 inches in height and placed within five feet of the hole.—*Mining Record*

## Washington, D. C. . . .

Competitive bidding for oil and gas leases on Indian lands in the Four Corners area has resulted in bonuses for the Indian owners of over \$45,000,000 in the past six months, the Bureau of Indian Affairs announced. By comparison, the combined income realized by all Indian tribal groups and individual Indian landowners from bonuses, rents and royalties on oil and gas leases in the 12-month period which ended June 30, 1956, was approximately \$41,000,000. The latest opening of bids on Indian lands in this area was held at Ignacio, Colorado, March 25, and produced total high bonus offerings of \$4,358,040 on 45 tracts comprising 56,336 acres. Of this amount, \$4,284,269 was bid for tribal and allotted lands of the Ute Mountain Reservation and the balance for lands on the adjoining Southern Ute Reservation.

## Boron, California . . .

U.S. Borax & Chemical Corporation reports that it has reached the main borate ore body in its new open pit mine at Boron. Tincal ore, which is the principal raw material for a host of important boron chemicals, was reached at a depth of 137 feet after 7,000,000 tons of overburden were removed. Production was scheduled to begin in June. The new pit is the largest known sodium borate ore body in the world and this mine, to be operated by the Pacific Coast Borax Company Division, is the first large open pit borate operation in the United States.—*Boron Enterprise*

## Manhattan, Nevada . . .

Work of preparing the old White Caps Mine for active operation is being conducted by the White Caps Gold Mining Company. The work was concentrated on pumping out the shaft which has been under water since 1935. Prior to that, the mine produced \$5,000,000 in gold. Plans call for the pumping of water down to the 800 foot level and rehabilitating that level to a crosscut directly over the ore body.—*Pioche Record*

## Henderson, Nevada . . .

A \$15,000,000 expansion program by Titanium Metals Corporation is progressing rapidly and company officials expect the melt shop, which will be used for melting titanium sponge into ingots, will be ready for operation by August 1. The 51,000-square-foot building is the largest ever erected for the sole purpose of melting titanium. Meanwhile, announcement was made that Titanium Metal's 1956 production of 6000 tons of titanium sponge was the greatest of any U.S. producer. This year's production goal is 9000 tons.—*Pioche Record*

## Boron, California . . .

Establishment of a mill site in the Kramer Hills Area, with the necessary buildings and appurtenances necessary to its operation, has been approved by the county planning commission. Allen B. Rasmussen plans to build the mill on Highway 395 about eight miles south of Highway 466.—*Barstow Printer-Review*

## Salt Lake City . . .

Over 2000 metal mining men and industrial mineral producers will meet in Salt Lake City September 9-12 to outline their views on national mineral policies and discuss the latest advances in mine and mill operating practices. The convention is being sponsored by the American Mining Congress.—*Inyo Register*

## Eureka District, Utah . . .

Dragon Consolidated Mining Co. reports increased earnings from royalties on its halloysite clay deposit in the Eureka Mining District. The clay is mined by and sold to Filtrol Corporation, operators of a plant for production of oil refining catalysts at Salt Lake City. Dragon, an affiliate of subsidiaries of Anaconda Co., receives royalties on the clay body mined by both underground and open pit methods. The company had a net income of \$119,800 in 1956, without provision for depletion.—*Salt Lake Tribune*

## ANSWERS TO QUIZ

Questions are on page 28

- 1—Mutton.
- 2—Antelope.
- 3—Tombstone.
- 4—Arizona.
- 5—Reg Manning.
- 6—Archeology.
- 7—Mexico.
- 8—Ephedra.
- 9—Obsidian.
- 10—Mountain Meadows Massacre.
- 11—The trek of Father Escalante.
- 12—Elephant Butte dam.
- 13—Navajos.
- 14—Petroglyphs.
- 15—Sedona.
- 16—Yellow.
- 17—Calcite.
- 18—June.
- 19—U.S. 80.
- 20—Carson City.

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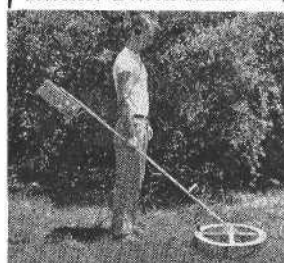
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## URANIUM NEWS

# Contract for Largest U. S. U-Mill Signed

Kermac Nuclear Fuels Corporation has signed a contract with the Atomic Energy Commission which will lead to construction of the largest uranium ore mill in this nation. Mill site is at Ambrosia Lake District northwest of Grants, New Mexico. Specifications call for a \$16,000,000 mill to process 3300 tons of ore daily.

Kermac is made up of Kerr McGee Oil Industries and Ambrosia Lake Uranium Co., both of Oklahoma City, Oklahoma; Anderson Development Co., Albuquerque; and Pacific Uranium Mines, Inc., of Los Angeles.

The mill will use a carbonate leach employing counter-current decantation process.

AEC officials said there was an option arrangement in the contract which permits the government to change purchase of uranium oxides to conform with regulations of the 1962-66 concentrate buying program. Under that program, as now stated, no more than 500 tons or 1,000,000 pounds of uranium concentrates will be produced and sold to the government from any one mine.—*Salt Lake Tribune*

### Yuma U-Mine Opened To Arthritis Sufferers

The Crown Uranium Mine, 38 miles northwest of Yuma in the Chocolate Mountain foothills, was scheduled to open its doors to sufferers of arthritis, sinusitis and asthma. The mine is one of several in the nation that have converted over to paid public visitations, although medical science has not endorsed the healing power of uranium.

The mine shipped one carload of high grade ore after it was developed in 1954. The elusive large ore body was lost, however, and mining is no longer profitable, the owners said.

Regular charge for mine sittings will be \$50 for six visits of one hour each, the recommended time limit.—*Yuma Sun*

### Nevada School Children Receive A-Blast Information

Fifty thousand copies of a booklet explaining the Atomic Energy Commission's test blasts have been distributed to school children in areas adjoining the Nevada test

site. Copies also were given to chambers of commerce in towns around the test site for distribution to tourists "who are afraid to drive by the testing range."

Written in general terms, the booklet attempts to reassure anyone who might be worried, that, based on the results of 45 nuclear explosions in Nevada between January, 1951, and June, 1955, no harm can come to anyone living in the area.

Fallout raising radioactivity levels "may make uranium prospecting difficult for a few days" after each blast, the AEC said. Geiger counters react sharply to even the smallest increase in radioactivity levels.—*New Mexican*

### Only 107 of 1200 U-Shippers Cited for "Consistent Supply"

Only 107 uranium producers in six states have been cited for outstanding performance as consistent shippers of uranium ore by the uranium industry. More than 1200 different operators made ore shipments during one or more of the four periods for which lists have been compiled by the Atomic Energy Commission. Of these, only the 107 on the Honor Roll appear on all four lists, according to *Uranium Magazine*. Of the steady shippers, Arizona has 12, Colorado 40, New Mexico 7, South Dakota 7, Utah 39 and Wyoming 10.

Comparing the two most recent lists of ore shippers, Colorado climbed from 146 to 163 while Utah dropped from 203 to 199.—*Moab Times-Independent*

### Homestake Mill Construction Underway Near Grants, N.M.

Men and equipment have begun construction on the Homestake-New Mexico Partners uranium processing mill near Grants, New Mexico, and about four miles north of

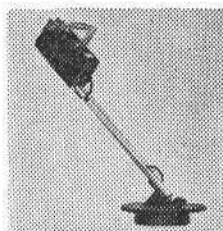
U. S. Highway 66. Completion is scheduled for late spring of 1958. The mill is expected to have a 750 ton-per-day capacity and will employ about 100 millworkers.

Homestake, with home offices in San Francisco, California, will operate the mill. The other "partners" include United Western Minerals Corporation, Rio De Oro Uranium Mines, Inc., and companies associated with these firms.—*Grants Beacon*

## NEW PRODUCTS FOR DESERT LIVING

### New Flashlight Floats If Dropped Overboard

Bright Star Industries of Clifton, New Jersey, is marketing a new waterproof floating flashlight designed to meet the needs of boat owners and fishermen for a light that can be retrieved if dropped overboard. The manufacturers claim that their new product has excellent corrosive resistant qualities. The new Bright Star light Number 8118, in addition to its ability to float, has a white Luminous end cap that glows in the dark; a three position waterproof signal switch; an emergency red lens ring; a bulb shock absorber and a plastic lens that reduces the possibility of breakage to a minimum; metal belt loop and an extra bulb holder. Retail price of the flashlight is \$3.95.



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# AMATEUR GEM CUTTER

By DR. H. C. DAKE, Editor of The Mineralogist

This is the second and concluding part of Dr. Dake's original translation of the 1913 paper by Dr. O. Dreher of Idar, Germany, on the artificial coloring of agates. Prior to the appearance of this paper, the coloring of agates had been a highly guarded secret.

Red—To produce red colors the agate is soaked in a strong solution of iron nitrate. According to the directions of the old German agate cutters, this solution should be

as thin as Munich beer. The aqueous solution of iron nitrate should be kept warm and the agate submerged for from one to four weeks according to the thickness of the stone.

Stones three mm. thick for about a week, six mm. about three weeks, and 10 mm. stones about four weeks. Stones thicker than 10 mm. will seldom color throughout. (A mm. is 1/25 of an inch.) This means that seldom will the color penetrate into an agate deeper than about five mm., or about 1/5 of an inch. Let it be understood at this point that all coloring is done after the stone or slab is completely cut and polished, otherwise grinding would expose the uncolored material below.

After the agate has been soaked in the above solution for the desired time, it should first be carefully dried in a warm oven for from two to ten days. This is to remove as much free moisture as possible prior to the "burning" to avoid possible fracturing.

The agate is removed from the oven and while still warm is placed in a crucible. The agates can be best packed in some substance like fibrous asbestos or powdered magnesium oxide, and the crucible covered (an iron crucible will answer).

The heat in the oven is raised very slowly, until the crucible has reached a red heat. It is then allowed to cool very slowly. This is best carried out by reducing the flame or heat gradually. The agate must not be removed from the crucible until the contents are completely cooled.

It is possible that some stones may not have the desired color. In this case the soaking in the iron nitrate solution and the oven "burning" can be repeated one or more times as desired.

Green colors can be produced in a number of ways. Two "baths" are in common use—saturated or strong solutions of chromic acid or potassium bichromate. The solution of chromic acid seems to be preferred, although the bichromate salt is cheaper.

The stone is placed in the chromic acid solution for from eight to 14 days, according to the thickness and the "hardness" of the agate. Stones or slabs over 10 mm. in thickness should remain in the bath for a longer time, up to eight weeks.

The stones are then removed from the

bath and placed in a warm closed container with lumps of ammonium carbonate, for at least two weeks. The purpose here is to have the ammonia gas penetrate the agate and cause a bright green precipitate of a chromate salt. (Liquid ammonia solution would possibly bleach out some of the soluble chromic acid or bichromate.) After the agate is removed from the ammonia gas chamber it is dried and then gradually strongly heated in a crucible and oven as described under red coloring.

Green colors often do not come up to expectations. A muddy green or bluish-green may be noted. Experiments often will solve the problem in various kinds of agate. Of the best methods so far as I know them, I dare not say anything, since they should yet remain secret.

Black coloring was first known to the Idar cutters in 1819, and was discovered in an accidental manner.

The agate is first soaked in a solution of ordinary sugar, 375 grams to one liter of water, or about as thick as flowing honey. The earlier cutters employed diluted honey, hence this solution is often called the honey bath. While the agate is in the sugar solution the vessel should be kept warm, as this seems to promote penetration. The stone is kept submerged for from one week to three weeks, according to thickness, "hardness," and depth of color desired. As water evaporates from the warm solution additional water can be added.

The agate is removed from the sugar solution and without washing is placed in sulphuric acid. The acid is slowly warmed on a hot plate and then brought to a boiling or near the boiling point for about fifteen minutes. The vessel should be covered and care should be exercised to avoid the hot acid from splattering in the eyes, skin or clothing. A large vessel is best and a hot plate where the heat can be controlled is excellent. The agate is permitted to cool with the acid for a few hours.

After the sulphuric acid treatment a stone may tend to "sweat," due to a small amount of acid remaining in the pores of the agate. This can be eliminated by soaking the agate in warm water for several hours or longer.

Blue coloring was first used at Idar in 1845. Two shades of blue can be had, by the use of yellow prussiate of potassium or by the use of the red prussiate of potassium (ferrocyanides of potassium).

Dissolve 250 grams of one of the above salts (poisonous) in one liter of water. The agate is soaked in this solution for from one week to two weeks. This bath should be kept warm, but not too hot and should not be boiled.

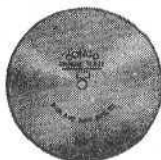
The agate is then soaked in a solution of iron vitriol (iron sulphate) for from four to eight days according to the depth of color desired. No "burning" is needed in this method.

A darker blue color will be had if the iron sulphate solution is acidified with a few drops of sulphuric and nitric acid. While the agate is in the iron sulphate solution it can be examined from time to time, and removed when the desired color is noted. The solutions used in agate coloring can be used repeatedly, by adding water to replace evaporation and small amounts of the salts as the liquid becomes weakened.

Some of the chemicals employed in agate coloring are poisonous or corrosive and should be used with due caution. In the use of the prussiate of potassium solutions, small amounts of cyanide gas may be generated and care should be used in the inhalation of these fumes. This can be best used in a chemical laboratory under a hood, or outdoors where the fumes cannot reach a possibly dangerous concentration.

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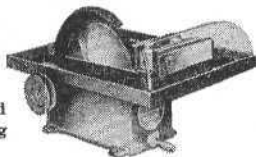


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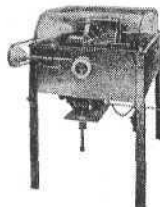
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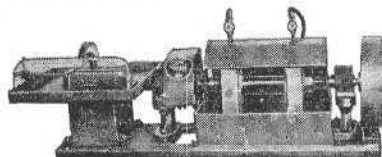
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# GEMS AND MINERALS



*"They say it was level here before the rockhounds came."*

## JULY SHOW CALENDAR

- July 4-6—Bend, Oregon. Deschutes Geology Club's annual show.
- July 4-7—Ellensburg, Washington. Annual All Rockhound Pow Wow.
- July 5-7—East Los Angeles. 18th Annual Convention and Show of the California Federation of Mineralogical Societies. Great Western Showgrounds, Eastern Ave., south of Santa Ana Freeway.
- July 6—Baltimore, Maryland. Micro-Mineral Collectors' National Symposium.
- July 13-14—Buhl, Idaho. Magic Valley Gem Club's 7th annual show.
- July 18-21—Pasco, Washington. Three Rivers Mineralogy Society's 2nd annual show.
- July 19-28—Santa Rosa, California. Redwood Gem and Mineral Society's show in conjunction with Sonoma County Fair.
- July 20-21—Reno. Second annual All Nevada Gem and Mineral show. Idlewild Park.
- July 21—Placerville, California. Third annual Stifle Memorial mineral and gem auction. Stifle Memorial.
- July 27-28—Delake, Oregon. North Lincoln Agate Society's 15th annual show.

## NEVADA OPALS TO HIGHLIGHT RENO SHOW

Special displays of Nevada opals, transparent slabs and Kalama, Washington, agates are planned for the July 20-21 Nevada Gem and Mineral Show at the Idlewild Park Recreation Building, Reno.

Two field trips, one to an agate field and the other to a wonderstone area, are scheduled by show officials. Club displays are planned by these societies: Washoe Gem and Mineral and Pyramid Gem and Mineral, both of Reno; and the Lahontan Gem and Mineral Club of Fallon. Free Nevada highway maps will be given to show visitors.

The Imperial Valley Gem and Mineral Society announced that it has planned its annual Gem Show for November 8-10 at the De Anza Hotel in Calexico, California. Further information can be had from Viola Dressor, secretary, Box 1721, El Centro.

## SAPPHIRE CARVING OF JEFFERSON COMPLETED

Recently presented to the people of the United States by the non-profit Kazanjian Foundation of Los Angeles, was the magnificent carved sapphire head of Thomas Jefferson. This was the fourth Kazanjian President Sapphire, the others being likenesses of Washington, Lincoln and Eisenhower.

The Jefferson stone weighed 1743 carats uncut and 1381 carats carved. Sculptor was Harry B. Derian and the stone was discovered in Queensland, Australia and purchased by Kazanjian Brothers, gem importers, in 1948.

It took a year and a half to carve the beautiful blue stone, and in the process over 70 diamond tipped tools were worn out. First step was to smooth and polish the stone in order to locate surface imperfections. Next, the nose was carved. Then came the forehead, mouth and chin. Last of all the eyes were sculptured and polished to give the optical illusion that they are moving from one side to the other as the viewer moves.

Jefferson's likeness was drawn mainly from his life mask made in 1825 when he was 82 years of age, and from two paintings made from life.

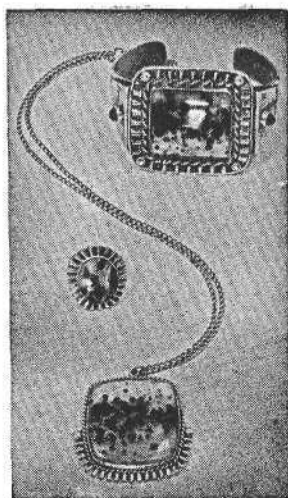
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## HOW TO CAB TIGEREYE TO GET "FLOATING EYE"

Obtaining the proper "floating eye" in a tigereye cabochon often proves difficult for the amateur gem cutter. Walter Jayne of the Wisconsin Geological Society suggests the following technique for pre-determining where the stone should be cabbed.

Take a slice of tigereye that has been properly cut—that is, parallel to the grain of the fibers—and sight across it at an angle of about 60-degrees. You should see the face of the stone divided into light and dark halves.

Lightly mark the dividing line with a pen-

cil, and holding the slice on the same plane, rotate it 360-degrees and again mark the dividing line between the light and dark portions of the face. The pencil marks should be in the same place. To double check, turn the stone over and you should get the reverse lighting effects on the two halves.

When you look down at 60-degrees and see the dark side of the slice nearest you, you are looking at what should be the crown of the finished stone, so place your template on the side where the light half is base.—Rock Lore

## THREE TYPES SANDERS AVAILABLE TO PUBLIC

There are three types of sanders available to the gem cutter—belt, drum and face. As far as quality of work produced is concerned, each does equally well.

Here are the main features of the three:

**Belt Sander.** This is a sander of industry and is used where production is an important factor. Using 10-foot belts traveling at high speed over rubber-bonded-to-metal wheels, the amount of work that can be turned out in a given time is amazing. The small models designed for home lapidary use retain some of this productivity, but not to any important extent. Belt sanders, generally, are not adaptable to equipment that is not designed expressly for their use, and they usually take up more space than other types.

**Drum Sander.** This is perhaps the most popular sander with lapidaries because it is adaptable to all kinds of equipment. It can be mounted on any kind of arbor, the end of a motor shaft, on a line shaft or in combination with other wheels. The wheel itself can easily be made from wood by the lapidary. Many methods have been devised to make the changing of sanding cloths on a drum sander both fast and easy, and to make a smooth surface where the ends of the cloth meet. Chief advantage of the drum sander over the face plate sander is that it is much easier and faster to sand a flat object on the drum. Over a period of time one probably would have to change sanding cloths more often on a drum sander than a belt, however.

**Face Plate Sander.** Sometimes the design of the equipment makes a face sander necessary. These sanders cannot match the other two in production, but they have two good features. A face plate gives you a greater variety of surface speeds without changing pulleys—by changing positions on the face, the center, of course, has a slower surface speed than the outer edge. Another good feature is that certain areas can be "saved" for special use. It is necessary to crown face sanders if you are going to work on flats because this type sander will sand heavily at the leading edge of the work and before you can remove the scratches in the center, your piece will be rounded—not flat. A crowned plate will sand along a narrow line of contact, and this line changes as the direction of pressure on the work is varied.—Carroll Kelley in the Minnesota Mineral Club's *Rock Rustler's News*

## ROCKHOUNDS SHOULD BE ON LOOKOUT FOR METEORITES

Much more common than generally supposed, meteorites are worth watching for in your field trip wanderings.

Any black polished mass or rust-coated rock in an unusual locality should be suspected as being a meteorite, particularly if it shows erosion marks in one direction.

The composition of meteorites vary. Diamonds, enstatite, chondrodite, hypersthene, olivine, bronzite and some feldspar and quartz have been found in some falls.

Among the nickel-irons, the following rare minerals, most of which have not been found on earth, have been identified: oldhamite, a sulphide of calcium; schreibersite, a phosphide of iron and nickel; daubreelite, a sulphide of iron and chromium; cohenite, a carbide of iron and nickel; moissanite, a silicide of carbon; and lawrencite, a chloride of iron.

Most of these minerals are believed to have been formed under temperatures in excess of 1,000,000 degrees.—Montebello, California, Mineral and Lapidary Society's *The Braggin' Rock*



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# 400 Competitors In July 5-7 California Federation Show

The largest display of minerals and lapidary work ever assembled for exhibition—400 cases—is expected for the July 5-7 California Federation of Mineralogical Societies convention and show by the host society, Compton Gem and Mineral Club. These competitive cases plus 32 cases of special displays and exhibits will be shown at the Great Western Show Building in East Los Angeles. Over 120 gem and mineral societies are expected to be represented in the event.

The convention opens at 10 a.m., July 6, at the Hotel Clark, 426 So. Hill St., Los Angeles, following an Editor's Breakfast at 8 a.m. That night a Banquet Under the Stars is planned at the exhibition hall.

Theme of this, the 18th annual show and convention of the federation, is "Treasure Trails." Over 15,000 square feet of floor space has been allotted to dealers from all over the nation. Show doors will open at 9 a.m. on all three days of the show. Members of the Federation may purchase three-

## GOOD POLISH DEPENDS ON PRELIMINARY SANDING

Many buff and polishing powder combinations are possible, but until the beginner prepares his cabochons properly, no combination will give him the polish he is looking for.

Most all equipment and polishing agents will do a good job and there is really very little difference between them. The secret of a good polish depends a great deal upon the preliminary sanding or lapping. It is easy to say there should be no scratches left on the cab save those made by the final sanding or lapping, but in actual practice, it is not so easy to do. It requires a trained eye and careful inspection with a good glass to detect those scratches that will not buff out quickly and completely. You must remember too, that a worn sanding cloth of say, 320 grit, can give you a better finish than a sharp, new cloth of 600 grit. Beware of new sanding cloths for your final sanding—keep the old ones for that purpose.

If you can't get the scratches out of your cabs with very little buffing, do not expect much improvement by changing buffs or polishing compounds. Concentrate, instead, on your preliminary finishing. — Carroll Kelley in the Minnesota Mineral Club's *Rock Rustler's News*

• • •

An 11 pound emerald found last year in the Tzaneen district of South Africa was brought to New York for examination this spring. The owners of the 24,000 carat stone did not know its worth, which has been estimated at from \$70 to \$14,000,000. Final valuation will depend on depth of color and the likelihood of flaws becoming apparent on cutting.—*Gem Cutters News*

• • •

The largest gem ever found was a 520,000 carat aquamarine near Marambaia, Brazil, in 1910, which yielded over 200,000 carats of gem quality stones. However, the largest known aquamarine crystal is a 13¼ pound stone valued at \$40,000 and found in Brazil, December, 1955.—*New Mexican*

day show passes for \$1. General admission is 90 cents per day.

Of interest to Southern California visitors will be special Gem-O-Rama tours to Disneyland, La Brea Tar Pits, Marineland and Knott's Berry Farm.

## CALIFORNIA MINERAL BOOK IS REPRINTED

A revised edition of Vinson Brown and David Allan's *Rocks and Minerals of California and Their Stories*, first published in 1955, is now available.

Written especially for the beginning collector and the layman, the book features 48 California rocks and minerals pictured in full color and 41 pages of two-color maps showing interesting mineral and rock locations throughout the state.

Published by Naturegraph Company, San Martin, California; 120 pages; many illustrations; \$2.75 paper cover; \$4.50 cloth.

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**12 POUNDS OF** beautiful Colorado mineral specimens, \$8.00 prepaid. Ask for list of others. Jack the Rockhound, P. O. Box 245, Carbondale, Colorado.

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**JUREANO WOOD,** gem quality, 65 cents plus postage. A. B. Cutler, Box 32, Salmon, Idaho. Slabs, tumbled, J. E. Cutler, Gearhart, Oregon.

**OPALS AND Sapphires** direct from Australia. Special—this month's best buy: Cut and polished solid opals ready for mounting; two ovals each 6 x 8, 8 x 10 and 10 x 12 mm. All six for \$15. Free airmailed. Send personal check, international money order, bank draft. Free 16 page list of all Australian Gemstones. Australian Gem Trading Co., 49 Elizabeth Street, Melbourne, Australia.

**FLUORITE OCTAHEDRONS,** 10 small gemmy cleavage crystals \$1 postpaid. Gene Curtiss, 911 Pine Street, Benton, Kentucky.

**TURQUOISE FOR Sale.** Turquoise in the rough priced at from \$5 to \$50 a pound. Royal Blue Mines Co., Tonopah, Nevada.

**DELIGHTFUL MIXTURE** Texas petrified palm, opalized wood, agate, calcite, etc. 8 pounds prepaid only \$10. Texas Gems, Box 185, Taylor, Texas.

**PETOSKEY AGATE** Shop, Gould City, Michigan. Petoskey stones, rough or polished. Petoskey stone jewelry. Floyd Irwin, Manager.

**ROUGH INDIA** star ruby, dopped, oriented. Ready to cut and polish. With instructions \$3.00. Price list free. Jack Schuller, 616-D Overhill, Park Ridge, Illinois.

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**AGATE, JASPER,** wood, gem grade, very colorful. Two pounds \$1.00. Ten pounds \$4.50 pp. Preston, Star Route, Box A-23, Grants, New Mexico.

If you can't get scratches out of your cabochons with very little buffing—don't expect much improvement by changing buffs or polishing compounds. The trouble probably stems from poor preliminary sanding. —Puguet Souder

## "QUOTES"

FROM THE GEM AND MINERAL WORLD

Happiness is not like a large and beautiful gem, so uncommon and rare that all search for it in vain, all efforts to obtain it hopeless; rather it consists of a series of smaller and more common gems grouped together into a pleasing and graceful whole. —Contra Costa, California, Mineral and Gem Society's Bulletin

\* \* \*

There is a great satisfaction in finishing something upon which much labor and time has been spent, knowing it is not perfect, but as nearly perfect as time will allow. —Seattle, Washington, Gem Collectors' Club's Nuts and Nodules



## ULTRASONIC WAVES USED TO SLICE QUARTZ

A new slicing device which uses ultrasonic waves for a cutting edge is being tested by the Army Signal Corp. Paper-thin wafers of quartz, a mineral much used in radio equipment, has been cut by the machine. The cutter produces three times as many usable quartz crystal slices from a block as do the best of diamond saws. — *SMS Matrix*

## QUARTZ CRYSTALS CLEANED IN OXALIC ACID SOLUTION

To clean quartz crystals, the following methods are suggested:

Slow method: mix one level tablespoon oxalic acid (obtainable in any drug store) in one quart water. Soak crystals until clean. Repeat process if crystals still are dirty.

Fast method: Use same solution as above and pour over crystals in two-pound coffee can. Heat over flame until quite hot—just below the boiling point. Let cool slowly and rinse. Caution: too much oxalic acid may etch the stones.—Fresno, California, Gem and Mineral Society's *Chips*

## COMMON ERRORS IN JEWELRY SOLDERING

Here are the common errors in soldering, and their causes:

Balling of solder. Improper fluxing, dirt, insufficient heat; flame concentrated on solder pellets rather than on base metal.

Solder pops off. Poor or dirty flux; preheating too fast.

Solder won't flow into joints. Dirt or oxides in joint; insufficient fluxing; uneven heating.

Solder seams show. Poor fitting; not enough heat; too much solder.

Solder joint breaks. Poor fitting; not enough solder; not enough heat to cause bond.

Lumping of solder. Not enough heat and fluxing.

Base metal fuses. Too much heat; solder to high fluxing.—*Template*

The following new officers were elected by the St. Louis, Missouri, Mineral and Gem Society: Joseph A. Schraut, Jr., president; Karl Busch, vice president; Mrs. Mabel Toeniskoetter, secretary; Charles Seger, treasurer; Frank Signaigo, historian-librarian; and Albert Frank, A. Paul Davis, Gloria Chastonay and J. Henry Ellersick, directors. —*Rock Lore*

The Sheep Springs collecting area in Kern County, California, has been closed until autumn, reports Mary Frances Berkholz, California Federation field trip chairman. Permission to collect there must be obtained from Sheep Springs Claims, Box 146, Little-rock, California.

## GEM SHOW RETURNS TO L. A. COUNTY FAIR

After an absence of two years because of a lack of space, the popular gem, rock and mineral show will return to the September 13-29 Los Angeles County Fair, Fair officials announced.

The show is scheduled to be housed in a large new \$200,000 exhibit building now under construction. In addition to a hundred cases of cut and polished stones and minerals, the fair is providing large commercial display space where natural and polished specimens will be placed on sale. Included among the new features is an industrial mineral exhibit of ores employed in the manufacture of products used in everyday living.

## DIAMOND SAW CARE ADDS TO LIFE OF BLADE

Your diamond saw, like all mechanical devices, should be given an occasional check-up to assure maximum efficiency. A few corrective measures taken in time can add to the cutting life of your blade. Listed below are some of the more common ailments of the diamond saw and their remedies.

**Misalignment between carriage and saw blade.** When the clamp holding the stones does not move at right angles to the axis of the saw blade, excessive wear will occur on one side of the blade, ultimately causing sticking and binding of the blade in the work. To check the accuracy of the carriage proceed as follows: Press the end of a pin into a block of wood and clamp the wood in the vise so that the head of the pin is not quite touching the side of the blade when the vise is in its forward or starting position. Make a pencil mark on the blade at this point and then rotate the blade 180 degrees. Being careful not to disturb the lateral adjustment of the vise, slide the vise back on the carriage until the pin is again in starting position. If the gap between pin and blade is not the same as it was in the first position, the blade and carriage are not in alignment and a corrective adjustment should be made.

**Excessive vibration.** This can be caused by several things and often is difficult to trace. Check for worn or loose bearings. The spindle should be firmly held by the bearings with no side play or wiggle when you try to shake it. It may be that the spindle is bent, in which case there is nothing to do but take it out and have a machinist straighten it. Sometimes the bench or stand is not rigid enough or the floor is uneven. Badly worn belts or too high a spindle speed will cause vibration although a saw in good shape can be run

at quite high speeds with good performance.

**High spots in blade.** A blade worn out of round will set up a hammering effect which is easily corrected. Using the pin and block as a gage, position the pin head very closely to the edge of the blade, and by rotating the blade slowly, any high spots will hit the pin. These spots should be peened down with a light hammer while the blade is on the spindle.

**Slight side wobble.** This is nothing to worry about for few saws are perfectly flat. However, if your blade has become excessively bent, it can often be peened back into position, but this requires care and a high degree of skill. Some saw manufacturers will do this job for you at a very nominal cost.—Carroll Kelley in the Minnesota Mineral Club's *Rock Rustler's News*

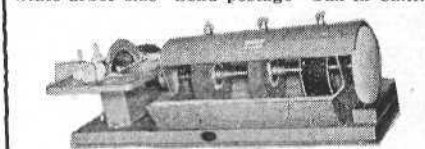
Never wear a turquoise ring or bracelet while washing your hands. Turquoise is a delicate gem that may be discolored by soap. —*SMS Matrix*

## Covington DIAMOND BLADES

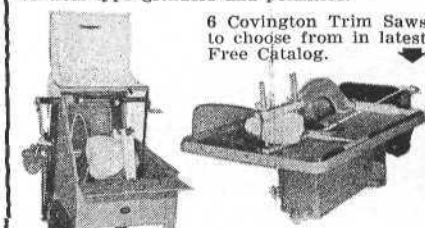
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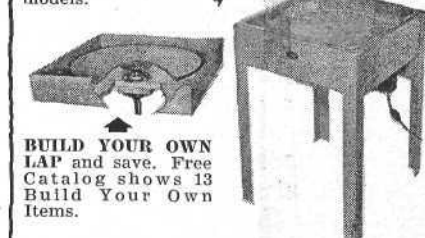
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By RANDALL HENDERSON

**F**OUR MONTHS ago I commented on the proposal of a little group of men in Arizona to strip the Salt River watershed of its timber as a means of putting more water runoff in Roosevelt reservoir.

Since then I have been reading William O. Douglas' *Strange Lands and Friendly People* in which the Supreme Court Justice describes what has happened in the Middle East since the famous Cedars of Lebanon were hewn down by the ancients. Douglas wrote:

"The cedars are mostly gone. Topsoil that their roots once held back has rushed to the Mediterranean. The gullies became harsher and deeper, the land more impoverished every year. The goats keep new forests from rising. Poverty has permeated the land."

According to the Bible, King Solomon once had 80,000 woodcutters chopping down those magnificent cedars, to build a great temple for himself (*1 Kings 5:15*). Solomon might be forgiven for his great error. He did not know better. It is not easy to be as tolerant of those who would send woodcutters into the great Salt River watershed today. We do know better—or we should.

\* \* \*

Recently I have read Dr. Albert Sweitzer's *A Declaration of Conscience*, in which the noted scientist points out the critical danger to human health in the continued release of radioactive elements in the atomic tests being conducted by United States, Great Britain and Russia.

I have been especially interested in such reports, because it is on the Great American Desert that the United States is releasing most of its test explosions. Some of our desert people in Nevada and Utah already have suffered from the ill effects of these explosions.

However, the danger of atomic fallout is more than merely a local problem. From H-bomb explosions the radioactive particles are carried to the higher air strata where they may remain for years before being brought to earth with rain or snow, anywhere around the world.

Since Dr. Sweitzer's report was made public by the Nobel Prize Committee in April, 2000 American scientists have signed a petition confirming the German doctor's conclusions and appealing to all nations to discontinue further atomic test explosions.

Not all scientists, however, agree that the danger is critical. The *U.S. News and World Report* in an early June issue, suggested that the alarming reports of danger from radioactive elements are Communist-inspired propaganda. All of which, in my humble opinion, is neither fair to American scientists, nor does it contribute the least mite of wisdom to the solution of a problem in which every human being has a stake.

Probably every American and Englishman, and most

of the Russian people themselves, would concur in a decision to discontinue any further atomic weapon tests. Pending such an agreement among the nations involved, I hope that a powerful public sentiment can be aroused in the United States against the conducting of any further tests in Nevada—or on continental United States.

In the meantime, I am sure that Russian scientists are no less aware of this new threat to human health and life than are the scientific men in the western world. I feel that the problem would be solved if the United Nations would call on all its member nations to abide by the results of a popular poll in which the people of each country would have the opportunity to express their wishes in the matter.

\* \* \*

Should a rattlesnake always be killed on sight? It is a question I have often heard discussed around the campfire. Among my acquaintances are some who will never kill a snake of any kind. They hold the view that snakes were created for a useful purpose and it is not for man to destroy them.

Among naturalists, however, the more common attitude is that rattlers should be killed only when they are found in inhabited areas. The range of a snake is seldom beyond a radius of three or four miles, and when they are found in sectors far from human habitation they pose no serious threat to human beings.

I recall an incident on the trail many years ago—in the Chuckawalla Mountains of Southern California. The nearest camp was that of a miner many miles away. The leader of our hiking party was an old-timer, a man whose creed was: "Rattlers are pizin—kill 'em on sight."

We were strung out single file along a narrow burro trail with the leader in front. A rattler was tightly coiled on the trail and he stepped over it without seeing it. It could have bitten him, but it made no move.

The next man in the line saw the snake and restrained those behind him. When the leader turned to learn the reason for the commotion, he saw the snake and looked around for a weapon to destroy it.

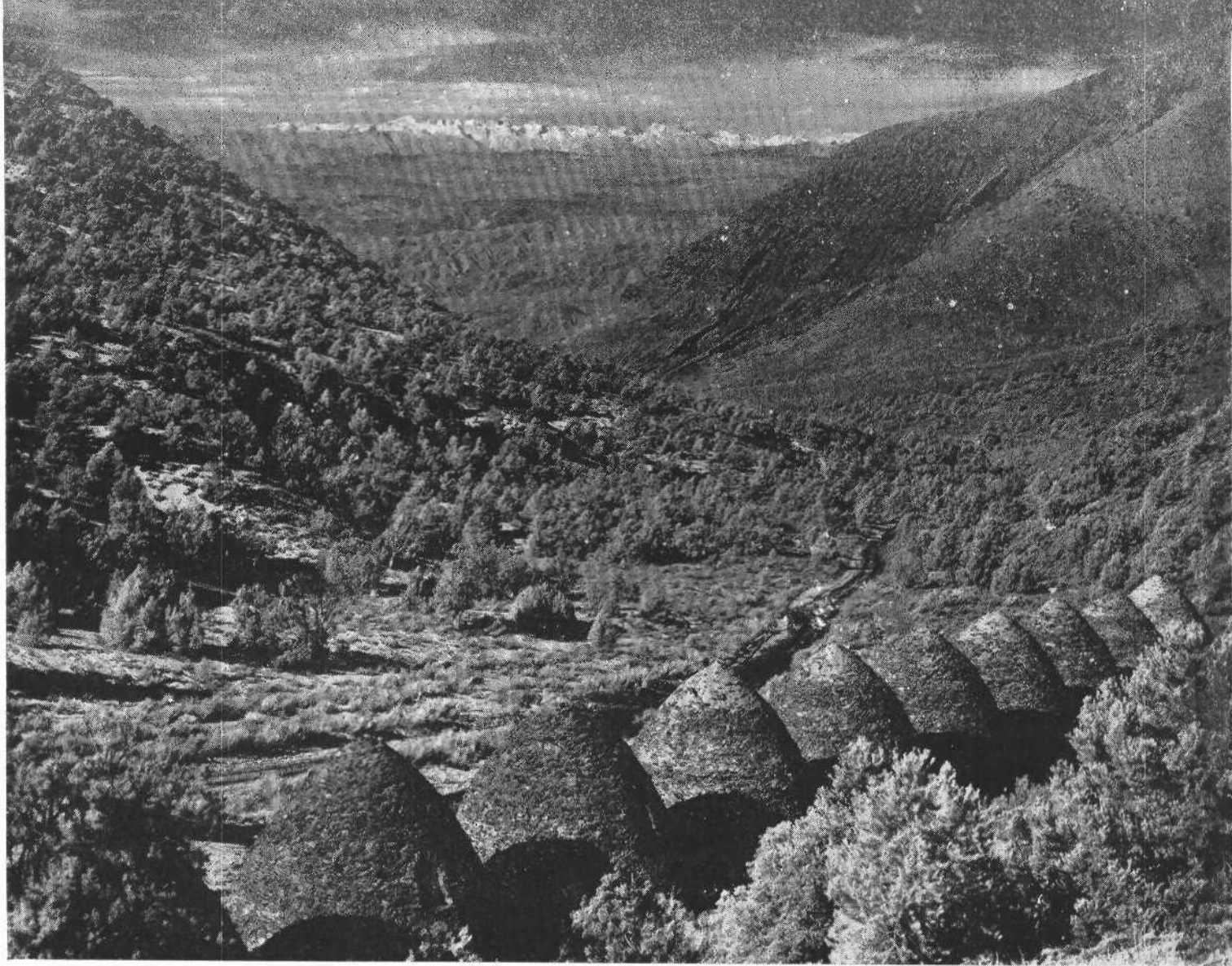
There were protests from some of the hikers: "Leave it alone, it didn't harm you!"

This was a new code for the old-timer, and he did not easily abandon the habit of a life-time. He was advancing toward the snake with a club of mesquite when a young woman in the party exclaimed: "Please! Don't you know the same God who created you also made the snake?"

The old-timer hesitated, growled his disapproval, and then tossed the stick aside as the rattler crawled off into the underbrush.







HISTORIC PANORAMAS V

*Charcoal Kilns in Wildrose Canyon. One hundred miles in the distance are the High Sierras.*

## Charcoal Kilns

By JOSEF and JOYCE MUENCH

In Wildrose Canyon near the Death Valley National Monument summer headquarters, these time-defying kilns stand like Indian Teepees. Above them is Mahogany Flat and the trail to the peak of Telescope. Looking west across the Panamint Valley, the distant Sierra Nevada may be seen.

The kilns were built in the 1870s by George Hearst. Trees were cut in the vicinity, converted into charcoal and then hauled to the smelters of distant mines across the valley. The kilns, each large enough to provide shelter for a number of campers, have watched a new forest grow up about them, but the danger of the stone furnaces devouring it is past.

*Thousands of cords of pine trees were fed into these "Beehives," and bits of charcoal still lie about.*

